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TAXONOMIC STUDIES ON THE STREPSIPTERA IN
THE COLLECTION OF BISHOP MUSEUM
(Notulae Strepsipterologicae-XX)*

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Abstract

One hundred and eleven male specimens of the Strepsiptera from Oceania and S. E. Asia in the collection of Bishop Museum, Honolulu, Hawaii, U. S. A. are taxonomically studied. They belong to 4 families, 8 genera and 42 species. A new species of *Triozocera*, 2 new species of *Coriophagus*, 7 new species of *Halictophagus*, 1 new species of *Elenchus*, 8 new species of ***Lychnocolax***, 1 new species of *Myrmecolax*, and 5 new species of *Stichotrema* are described. A new subgenus ***Neostichotrema*** in the genus *Stichotrema* is also proposed.

This paper presents the result of our study on the Strepsiptera from Oceania and S. E. Asia in the collection of Bishop Museum, Honolulu, Hawaii, U. S. A. The material includes 111 male specimens. As a result, 4 families, 8 genera and 42 species are recognized, as shown in the list given below.

We are grateful to Mr. Gordon T. Nishida, Collection Manager, Department of Entomology, Bishop Museum for lending us valuable and interesting specimens. We thank Dr. Shun-Ichiro Naomi for his assistance in preparation of the manuscript of this paper.

List of the Species

1. *Triozocera papuana* Kogan et Oliveira, 1964
2. *T. boharti* Luna de Carvalho, 1967
3. *T. siamensis* Kifune et Hirashima, 1979
4. *T. paradisea* sp. nov. (Fig. 1)

* Contribution from the Entomological Laboratory, Faculty of Agriculture, Kyushu University, Fukuoka (Ser. 3, No. 290).

5. *Coriophagus gressittorum* **sp. nov.** (Fig. 2)
6. *C. maa* sp. nov. (Fig. 3)
7. *Halictophagus australensis* Perkins, 1905
8. *H. javanensis* (Pierce, 1918)
9. *H. ancylophallus* sp. nov. (Fig. 4)
10. *H. samoanus* sp. nov. (Fig. 5)
11. *H. brevipenis* sp. nov. (Fig. 6)
12. *H. elongatus* sp. nov. (Fig. 7)
13. *H. eurycephalus* sp. nov. (Fig. 8)
14. *H. thoracicus* sp. nov. (Fig. 9)
15. *H. angustipes* sp. nov. (Fig. 10)
16. *Deinelenchus deviat* Kinzelbach, 1971
17. *D. hamifer* Kinzelbach, 1971
18. *Elenchus perkinsi* (Pierce, 1909)
19. *E. perkinsianus* sp. nov. (Fig. 11)
20. *Lychnocolax postorbis* Bohart, 1951
21. *L. ovatus* Bohart, 1951
22. *L. mindanao* Bohart, 1951
23. *L. orientalis* Kifune, 1981
24. *L. novaeguineae* sp. nov. (Fig. 12)
25. *L. solomon* sp. nov. (Fig. 13)
26. *L. insularis* sp. nov. (Fig. 14)
27. *L. neobritannicus* sp. nov. (Fig. 15)
28. *L. aerius* sp. nov. (Fig. 16)
29. *L. simplex* sp. nov. (Fig. 17)
30. *L. vietnamicus* sp. nov. (Fig. 18)
31. *L. chinensis* sp. nov. (Fig. 19)
32. *Myrmecolax furcatus* Bohart, 1951
33. *M.rossi* Bohart, 1951
34. *M.odontognathus* Kogan et Oliveira, 1964
35. *M.genitalis* sp. nov. (Fig. 20)
36. *Stichotrema retrorsum* (Bohart, 1951)
37. *S. acutipenis* (Kogan et Oliveira, 1964)
38. *S. fijiense* sp. nov. (Fig. 21)
39. *S. capito* sp. nov. (Fig. 22)
40. *S. laticeps* sp. nov. (Fig. 23)
41. *S. silvaticum* sp. nov. (Fig. 24)
42. *S. (Neostichotrema) gressitti* subg. et sp. nov. (Fig. 25)

CORIOXENIDAE

TRIOZOCERINAE

1. *Triozocera papuana* Kogan et Oliveira, 1964

Triozocera papuana Kogan et Oliveira, 1964, Studia ent., 459, figs. 1-14 (male). Loc.: Gurakor, Wampit R. Valley, Morobe Dist., Papua New Guinea. : Kinzelbach, 1971, Zoologica,

(119) : 150.

SPECIMENS EXAMINED. SOLOMON ISLS. : 2 males [025,026], Bougainville, Sohano, 1956, E. J. Ford, Jr. ; 1 male [091], Santa Ysabel, Buala, 21. VIII. 1964, R. Straatman, light trap ; 1 male [019], Guadalcanal, Kukum (10 m), 19. VI. 1956, J. L. Gressitt, light trap ; 1 male [081], Guadalcanal, Tambalia, 30 km W. Honiara, 22. V. 1964, R. Straatman ; 1 male [082], same locality, 24. V. 1964, R. Straatman. NEW GUINEA : 1 male [061], NE, Wau (1,400 m), Morobe Distr., 17. VI. 1961, J. L. Gressitt & J. Sedlacek, light trap ; 1 male [050], NETH, Waris (450-500 m), S. of Hollandia, 24-31. VIII. 1959, T. C. Maa, at light ; 1 male [072], NW, Nabire, S. Geelvink Bay, 12. IX. 1962, H. Holtmann, low vegetation.

DISTRIBUTION : Solomon Islands (Bougainville, Santa Ysabel, Guadalcanal), New Guinea (Papua, Irian Jaya). This species is recorded from Solomon Islands for the first time.

2. *Triozocera boharti* Luna de Carvalho, 1967

Triozocera mexicana Pierce, 1909 : Luna de Carvalho, 1956. Publ. cult. Co. Diam. Angola, (29) : 22, fig. 5 (male). Loc. : Maco, Tagum, Davao, Mindanao, P. I.

Triozocera boharti Luna de Carvalho, 1967, Publ. cult. Co. Diam. Angola, (77) : 18, figs. 1 & 3D (male). Loc. : Maco, Tagum, Davao, Mindanao, Philippines. — : Kinzelbach, 1971, Zoologica, (119) : 150.

SPECIMEN EXAMINED. PHILIPPINES : 1 male [052], Negros Or., Dumaguete City, 26-29. IX. 1959, L. Quate & C. Yoshimoto, light trap.

DISTRIBUTION : Philippines (Negros, Mindanao).

3. *Triozocera siamensis* Kifune et Hirashima, 1979

Triozocera siamensis Kifune et Hirashima, 1979, Esakia, (14) : 62, figs. 1-7 (male). Loc. : San Pa Tong, Thailand. — : Kifune, 1981, Kontyû, 49(2) : 322 (male). Loc. : Perak, West Malaysia.

SPECIMENS EXAMINED. MALAYSIA : 1 male [034], N. Borneo, Tawau District, Kalabakan, 19. XI. 1958, T. Maa, M-V trap. LAOS : 1 male [056], Luang Prabang (300 m), 4-5. VI. 1960, S. Quate & L. Quate, Light trap.

DISTRIBUTION : Laos, Thailand, Malaysia (Malaya, Sabah). This is the first record of this species from Laos and Borneo (Sabah).

4. *Triozocera paradisea* sp. nov. (Fig. 1)

Male

Size. Total length of body 2.9-3.2 mm ; length of head and thorax together 1.8-1.9 mm ; head breadth 0.72-0.78 mm ; metathoracic breadth 0.62-0.69 mm ; length of antenna 0.88-0.96 mm ; radial length of hind wing 1.98-2.20 mm ; genital capsule 0.72-0.88 mm in length, 0.34-0.37 mm in breadth ; length of aedeagus 0.63-0.67 mm.

Structure. Typical form of the genus. Head elliptical ; eyes elliptical, about 15 facets visible from above ; antennae 7-segmented, first segment trapezoidal, second segment disc-like, each flabellum of third and fourth segments long, with blunt tips, fifth segment long, cylindrical, slightly shorter than sixth and seventh segments together, seventh segment slightly longer than sixth, flabellum of third segment reaching the base of seventh ; maxillary palpi 2-segmented, tip of distal segment surpassing the tip of proximal segment.

Prothorax approximately half as broad as head ; mesothorax a little broader than prothorax with

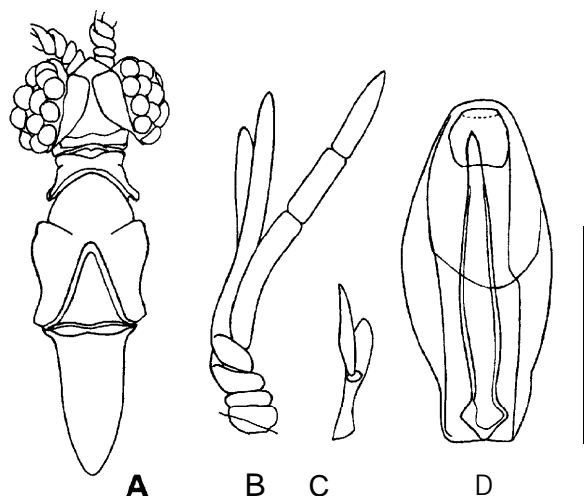


Fig. 1. *Triozocera paradisea* sp. nov., male, holotype [067]. A : Head and thorax, dorsal view. B : Right antenna, dorsal view. C : Right maxillary palpus, ventral view. D : Genital capsule, caudal view. Scale : 1 mm for A. 0.5 mm for others.

expanded posterior portion ; anterior margin of prescutum strongly curved, lateral sides of both scuti undulated ; scutellum triangular, almost as long as broad at its base ; postlumbium short, **spindle-shaped**, transversely elongated ; postscutellum conical, almost as long as prescutum and scutellum together.

Hind wing with typical venation ; detached vein near radius weak but long, **costa** and subcosta surpassing the midpoint of anterior margin of the wing.

Abdomen with typical form of the genus. Genital capsule elliptical, with truncate posterior end ; proctiger subquadrilateral, with curved lateral margins ; aedeagus sword-like, broadest at basal third, occasionally slightly constricted at apical tenth, sinuated in lateral view.

Legs slender, of typical form.

TYPE MATERIALS : Holotype male [067] and 1 paratype male [066], West New Guinea, **Nabire** (5—50 m), 25. VIII-2. IX. 1962, J. Sedlacek, Malaise trap; 1 paratype male [064], West New Guinea, **Nabire**, S. Geelvink Bay (1-20 m), 2-9. VII. 1962, J. L. Gressitt ; 1 paratype male [065], New Guinea (NW), **Nabire**, S. Geelvink Bay (0-30 m), same date, J. L. Gressitt & Sedlacek, light trap.

REMARKS. This new species is similar to *T. papuana* Kogan et Oliveira, 1964, but distinguishable by the body larger, the distal segment of maxillary palpi tapered, and the aedeagus weakly constricted at its apical tenth.

HALICTOPHAGIDAE

HALICTOPHAGINAE

5. *Coriophagus gressittorum* sp. nov. (Fig. 2)

Male

Size. Total length of body 3.12 mm ; length of head and thorax together 1.99 mm ; head breadth

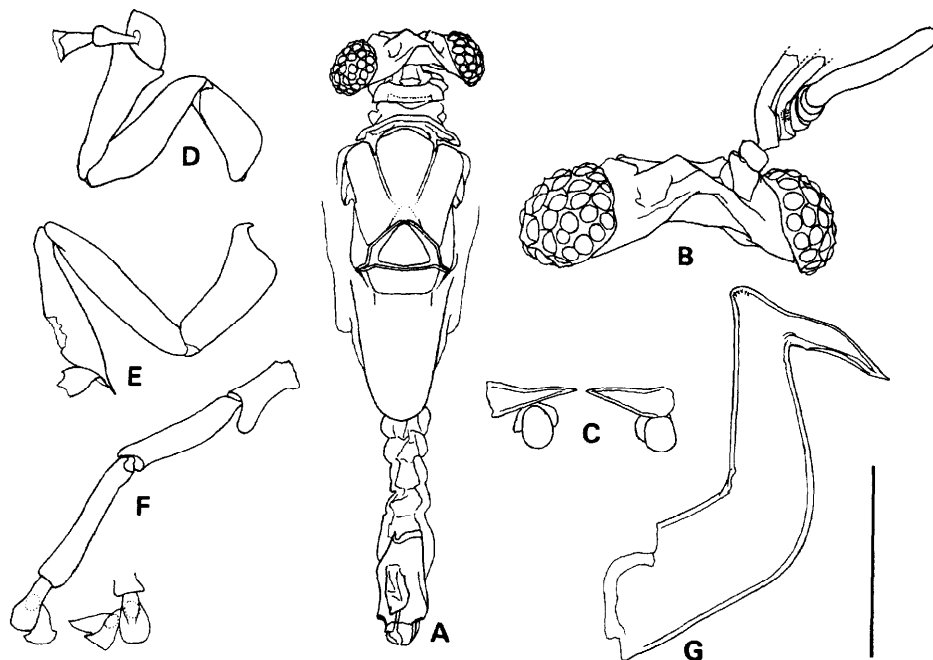


Fig. 2. *Coriophagus gressittorum* sp. nov., male, holotype [021]. A : Body, dorsal view. B : Head, dorsal view. C : Mandibles and maxillary palpi, ventral view. D : Right fore leg, ventral view. E : Right mid leg, ventral view. F : Right hind leg and tarsi of left hind leg, ventral views. G : Aedeagus, left lateral view. Scale : 1 mm for A, 0.25 mm for C, 0.125 mm for G, 0.5 mm for others.

0.80 mm ; metathoracic breadth 0.70 mm ; length of antenna 0.68 mm ; radial length of hind wing 1.98 mm ; genital capsule 0.62 mm in length, 0.27 mm in breadth ; length of aedeagus 0.25 mm.

Structure. Head transverse, posterior margin deeply concave, vertex triangularly protruded ; eyes hemispherical, about 20 facets visible from above, facets of ventral side larger than those of dorsal side ; antennae 7-segmented, *flabella* of 3rd to 6th segments of right antenna missing, left antenna completely lost, probably by insect damage ; mandibles moderately long, triangular with sharp tips ; maxillary palpi very short, distal segment globular.

Pronotum transverse, narrower than interocular distance ; anterior half of mesonotum as broad as pronotum, posterior half expanded ; prescutum rhomboid, scuti rectangular; sutures between prescutum and both scuti remarkable, but fused to each other posteriorly ; scutellum pentagonal, posterior third of its lateral margins subparallel, posterior margin slightly waving ; postlumbium almost rectangular, transverse ; postscutellum conical, its tip rounded ; legs slender, **tarsi** S-segmented (allied to *Halictophagus*).

Venation of hind wing like that of *Halictophagus* ; detached vein from radius not so long as in *C. rieki*, approximately two-thirds as long as the detached vein from media.

Abdomen very slender, narrowest at about median portion ; genital capsule conspicuously long, subhexagonal, posterior tip slightly surpassing the tip of 8th sternite; proctiger oval, tongue-like. Aedeagus with sharp, slightly undulated hook, without ventral prong, shaft obtusely angled at about median portion,

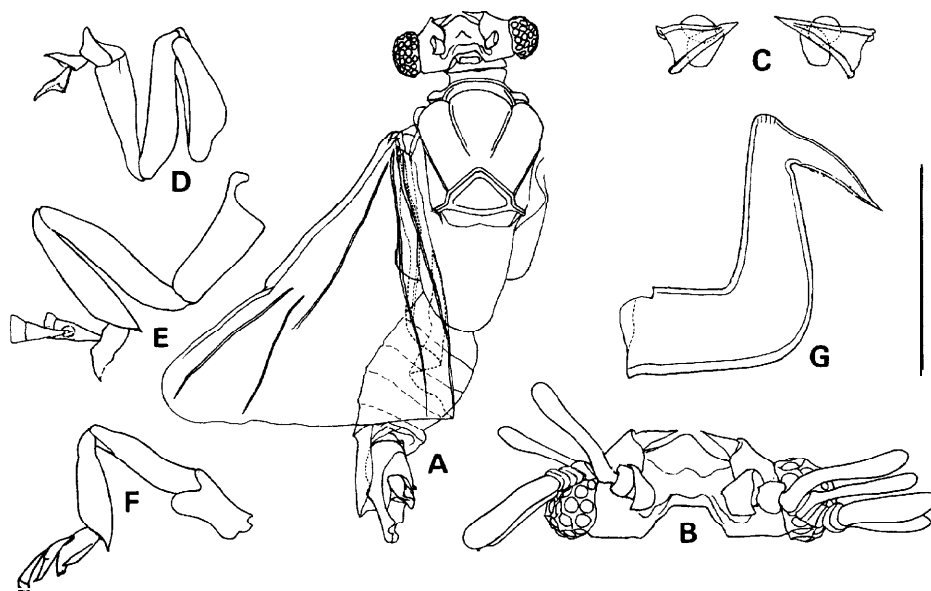


Fig. 3. *Coriophagus maai* sp. nov., male, holotype [039]. A: Body and left hind wing, dorsal view. B: Head, dorsal view. C: Mandibles and maxillary palpi, dorsal view. D: Right fore leg, ventral view. E: Right mid leg, ventral view. F: Right hind leg, ventral view. G: Aedeagus, left lateral view. Scale: 1 mm for A, 0.25 mm for C, 0.125 mm for G, 0.5 mm for others.

TYPE MATERIAL: Holotype male [021], Solomon Is., Guadalcanal, Gold Ridge-Suta (Jonapau) (1,100 m), 26. VI. 1956, J. L. Gressitt, light trap.

REMARKS. This new species is very similar to *C. rieki* Kinzelbach, 1971, from Australia, but clearly differs from it by the shorter pronotum and long sutures between the prescutum and both scuti. The new species may be closely related to *C. solomonensis* Kinzelbach, 1971, from Solomon (Malaita I.), which was described on a female specimen obtained from a pentatomid bug.

6. *Coriophagus maai* sp. nov. (Fig. 3)

Male

Size. Total length of body 2.50 mm; length of head and thorax together 1.51 mm; head breadth 0.72 mm; metathoracic breadth 0.71 mm; length of antenna about 0.45 mm; radial length of hind wing 1.76 mm; genital capsule 0.55 mm in length, 0.23 mm in breadth.

Structure. Head transverse, posterior margin trapezoidally concave, vertex fairly triangularly elevated; eyes oval, about 20 facets visible from above, facets of ventral side larger than those of dorsal side; antennae 7-segmented, flabella of 3rd to 5th segments rather slender, those of 6th and 7th segments comparatively broader than the flabella of the preceding three segments, each flabellum tapering towards the base; mandibles triangular, with sharp tips; maxillary palpi very short, 2-segmented, proximal segment oval, distal segment also oval, shorter than mandible.

Pronotum and mesonotum short, as in the preceding species; anterior margins of prescutum and scuti rounded, prescutum subtriangular, scuti rectangular, fused posteriorly; scutellum almost triangular, posterior margin slightly curved posteriorly; postlumbium longitudinally constricted at median line, gourd-formed; postscutellum rather thick, conical, posterior tip rounded; legs slightly

stouter than the preceding species, tarsi 3-segmented.

Hind wing with typical venation of the genus, but detached vein from radius inconspicuous, radius slightly longer than the distal media, proximal media about one and a half times as long as the distal media.

Abdomen rather broad ; genital capsule similar to that of *C. gressittorum*, but its posterior end clearly surpassing the tip of 8th sternite ; proctiger triangular, tip slightly prolonged. Aedeagus without ventral prong, with sharp, slightly undulated hook, shaft rectangularly angled at about basal two-fifths and gradually thickened towards base.

TYPE MATERIAL : Holotype male [039], New Guinea, NETH., Bodem, 10-17. VII. 1957, T. C. Maa, light trap.

REMARKS. This is characteristic in having the head strongly emarginate at the posterior margin and the aedeagus rectangularly angled. The venation of hind wing is also distinctive as described above.

7. *Halictophagus australensis* Perkins, 1905

Halictophagus (*Bruesia*) *australensis* Perkins, 1905, Rept. exp. Stat. Hawaii. Sugar Planters' Assoc., Bull., 1(3) : 103, pl. I, figs. 3, 5, & 9 ; pl. II, figs. 1, 7, & 9 ; pl. III, figs. 8 & 9 (male & female). Loc. : Cairns, Queensland, Australia. Host : *Tettigonia* sp. (= *Cicadella parthaon*).

Pentoxocera Pierce, 1908, Proc. ent. Soc. Wash., 9 : 80, 83. *Pentoxocera australensis* (Perkins, 1905) : Pierce, 1909, U. S. Natn. Mus., Bull., (66) : 158, pl. 13, figs. 8-12.

Pentozocera : Pierce, 1911, Proc. U. S. Natn. Mus., 40 : 504. *Pentozocera australensis* (Perkins) : Pierce, 1911, Gen. Insect., (1 21) : 38, pl. 3, fig. 4 ; pl. 4, figs. 3, 10, 14, & 28. — : Pierce, 1918, Proc. U. S. Natn. Mus., 54 : 474.

Halictophagus australensis Perkins, 1905 : Bohart, 1943, Ann. ent. Soc. Amer., 36(3) : 353, **fig. 28**. — : Kinzelbach, 1971, Zoologica, (119) : 152.

This species has often been cited under various names as indicated above but no new records have been published.

SPECIMEN EXAMINED. AUSTRALIA : 1 male [004], Cairns, 28. VII. 1904.

DISTRIBUTION : Australia (Queensland).

HOST : *Cicadella parthaon* (Homoptera : Cicadellidae).

8. *Halictophagus javanensis* (Pierce, 1918)

Cyrtocaraxenos javanensis Pierce, 1918, Proc. U. S. Natn. Mus., 54 : 475, pl. 78, figs. 1-6 (male). Loc. : Buitenzorg, West Java.

Halictophagus javanensis (Pierce) : Bohart, 1943, Ann. ent. Soc. Amer., 36(3) : 355. — : Kinzelbach, 1971, Zoologica, (119) : 153.

This species was known by the holotype (male) only from Java (= Jawa, Indonesia). The present record is, therefore, new to the species.

SPECIMEN EXAMINED. PHILIPPINES : 1 male [086], Leyte, Makaplag, 11. VII. 1964, M. D. Delfinado, light trap.

DISTRIBUTION : Philippines (Leyte), Indonesia (Java).

9. *Halictophagus ancyllophallus* sp. nov. (Fig. 4)

Male

Size. Total length of body 2.76 mm ; length of thorax 1.44 mm ; head breadth 0.70 mm ; metatho-

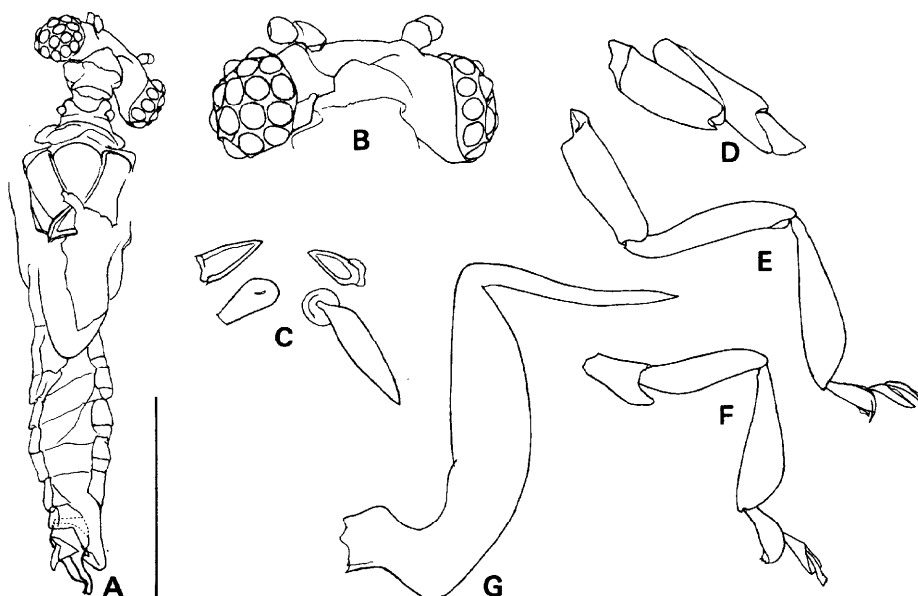


Fig. 4. *Halictophagus ancylophallus* sp. nov., male, holotype [041]. A: Body, dorsal view B: Head, dorsal view. C: Mandibles and maxillary palpi. D: Left fore leg (damaged), ventral view. E: Left mid leg, ventral view. F: Left hind leg, ventral view. G: Aedeagus, left lateral view. Scale: 1 mm for A, 0.25 mm for C, 0.125 mm for G, 0.5 mm for others.

racic breadth 0.65 mm; radial length of hind wing more than 1.50 mm; genital capsule 0.41 mm in length; lengths of dorsal hook and shaft of aedeagus 0.14 mm and 0.21 mm, respectively.

Structure. Head moderately transverse, posterior margin concave; eyes oval, about 10 facets visible from above, facets of inner row slightly smaller than others; antennae missing except basal two segments; mandibles triangular; maxillary palpi 2-segmented, proximal segment club-shaped, distal segment lanceolate.

Pronotum narrow; acrotergite subquadrate; mesonotum posteriorly broadened; anterior margins of prescutum rounded, of scuti almost straight; scuti rectangular; scutellum triangular; post-scutellum ovally conical; right legs damaged; left fore leg also terminally lost; left mid and hind legs rather stout; hind wing broken; no remarkable characters observable in venation.

Abdomen moderately swollen; genital capsule clearly surpassing the tip of 8th sternite; proctiger triangular. Aedeagus of characteristic form; ventral prong absent, dorsal hook very long, slender, and slightly curved, tip sharp; shaft thickened at median portion, rightly angled at base; total form of aedeagus in shape of the crane neck and bill.

TYPE MATERIAL: Holotype male [041], New Guinea, NETH., Sarmi, 20-23. VII. 1959, T. C. Maa, M. V. light trap.

REMARKS. This species is generally allied to *H. piperi* Bohart, 1943, from the Philippines, in the shape of aedeagus, but is distinguishable from it by the body smaller, the abdominal sternites pallid, and the aedeagus medianly thickened.

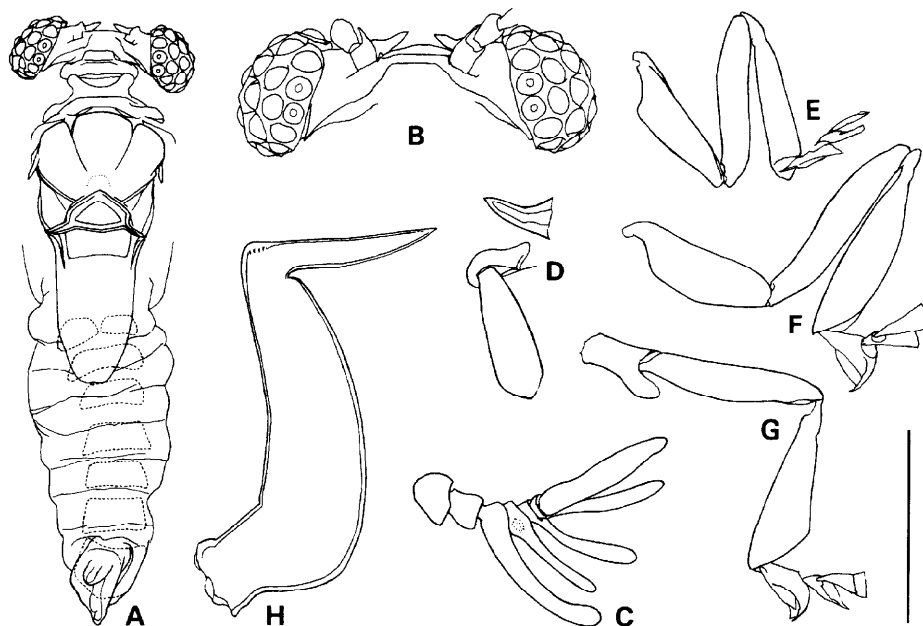


Fig. 5. *Halictophagus samoanus* sp. nov., male, paratypes [084, 085]. A: Body, dorsal view. B: Head, dorsal view. C: Left antenna, frontal view. D: Left mandible and maxillary palpus, ventral view. E: Left fore leg, ventral view. F: Left mid leg, ventral view. G: Left hind leg, ventral view. H: Aedeagus, left lateral view. Scale: 1 mm for A, 0.25 mm for D, 0.125 mm for H, 0.5 mm for others.

10. *Halictophagus samoanus* sp. nov. (Fig. 5)

Male

Size. Total length of body 2.7-3.4 mm ; length of head and thorax together 1.8-1.9 mm ; head breadth 0.86-0.97 mm ; metathoracic breadth 0.63-0.78 mm ; length of antenna 0.65-0.66 mm ; radial length of hind wing 1.8-2.0 mm ; genital capsule 0.47-0.50 mm in length, 0.24-0.25 mm in breadth ; length of aedeagus 0.24—0.28 mm.

Structure. Head transverse, posterior margin concave ; eyes elliptical, about 15 facets visible from above, facets of ventral side larger than those of dorsal side ; antennae 7-segmented, flabellum of 3rd segment largest, 7th segment broadest but slightly shorter than 3rd flabellum, 4th flabellum shortest, flabella of 5th and 6th segments intermediate in size ; mandibles slightly curved, triangular ; maxillary palpi 2-segmented, proximal segment oval, a little shorter than mandible, distal segment club-shaped, broadest at about apical fourth.

Pronotum short, anterior margin trapezoidally produced ; mesonotum constricted at median portion, anterior margin rounded concave ; acrotergite semicircular ; prescutum ovoid, with rounded anterior margin ; scuti subtriangular, also with rounded anterior margins ; prescutum and scuti fused posteriorly ; scutellum pentagonal ; postlumbium rectangular ; postscutellum cylindrical, posterior third tapering, posterior tip rounded or rather truncate ; legs of normal shape ; tarsi 3-segmented, first tarsal segments of mid and hind legs hemispherical ; hind wing with normal venation, detached vein from radius small.

Abdomen moderately swollen ; 2nd to 7th sternites recognizable, 2nd sternites divided into two

juxtaposed parts trapezoidal, others not divided ; genital capsule pentagonal, clearly surpassing the tip of 8th abdominal segment ; proctiger triangular, tip rounded ; aedeagus with sharp ventral hook and thickened shaft, hook half as long as shaft, shaft gradually thickened towards its base, obtusely angled near base.

TYPE MATERIALS : Holotype male [010], Afimalu, Upolu, Samoa (2,200 feet), 5. VII. 1940, Swezey & Zimmerman, at light ; 1 paratype male [080], American Samoa, Tutuila, Fagatogo, 7. I. 1964. N. R. Spencer ; 1 paratype male [083], American Samoa, Tutuila, Taputimu, 24. VI. 1964, same collector ; 2 paratype males [084,085], same locality, 25. VI. 1964, same collector ; 4 paratype males [092-095], same locality, 13. X. 1964, same collector ; 1 paratype male [089], American Samoa, Tutuila, Tapuna, 14. VIII. 1964, same collector.

REMARKS. This new species is allied to the preceding species and *H. piperi* but differs from them by the shapes of aedeagus and maxillary palpi, and the size of body.

11. *Halictophagus brevipenis* sp. nov. (Fig. 6)

Male

Size. Total length of body 3.06 mm ; length of head and thorax together 1.91 mm ; head breadth 0.84 mm ; metathoracic breadth 0.75 mm ; radial length of hind wing 2.02 mm ; genital capsule 0.44 mm in length, about 0.13 mm in breadth ; diagonal length of aedeagus 0.12 mm.

Structure. Head transverse, vertex anteriorly produced, antennal basements slightly surpassing the anterior margins of eyes, posterior margin deeply concave ; eyes oval, weakly swollen, about 13 facets visible from above, 4 facets situating the center of the ventral side remarkably larger than others ; mandibles triangular, about twice as long as broad at base ; antennae 7-segmented, 3rd to 7th

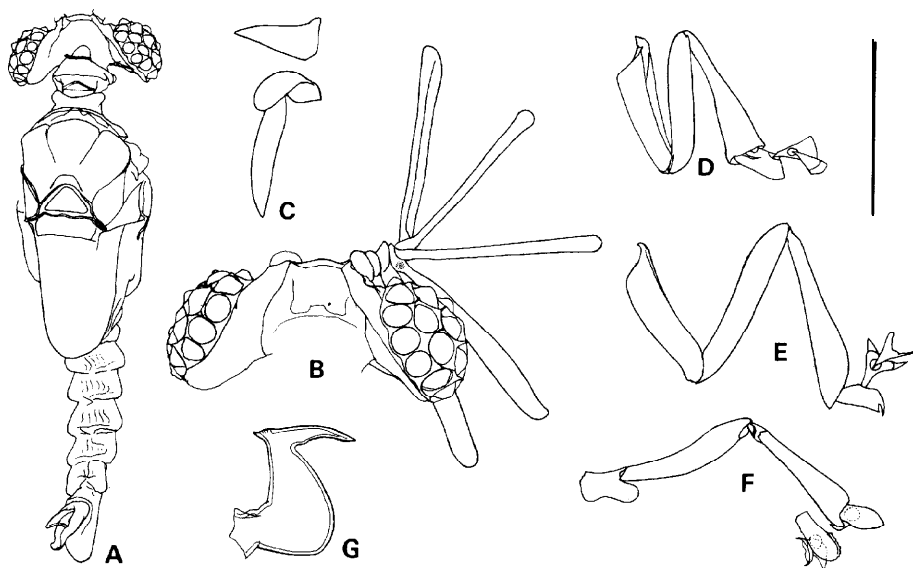


Fig. 6. *Halictophagus brevipenis* sp. nov., male, holotype [009]. A : Body, dorsal view. B : Head, dorsal view. C : Left mandible and maxillary palpus, ventral view. D : Left fore leg, ventral view. E : Left mid leg, ventral view. F : Left hind leg and tarsi of right hind leg, ventral view. G : Aedeagus, left lateral view. Scale : 1 mm for A, 0.25 mm for C, 0.125 mm for G, 0.5 mm for others.

segments of left antenna lost, flabella of 3rd to 6th segments and 7th segment equal in length to each other, flabella of 5th and 6th segments more slender than other flabella which are slightly broad ; maxillary palpi Z-segmented, proximal segment more or less long, flattened, distal segment lanceolate, about one and a half times as long as proximal segment.

Pronotum narrow, trapezoidal, connected to head with triangular membrane ; acrotergite pentagonal, anterior margin triangularly protruded ; mesonotum with concave anterior margin, posterior half expanded ; prescutum subtriangular, with rounded anterior margin ; scuti rectangular ; prescutum and scuti fused to each other ; scutellum pentagonal ; anterior margin of postlumbium undulated, postlumbium rectangular ; postlumbium conical with rounded tip. Legs slender, all tibiae thickened toward tips, first tarsi oval, hemispherically curved; hind wing with typical venation.

Abdomen slender, segmentation remarkable ; sternites triangularly protruded ventrad ; 1st sternite separated into two juxtaposed triangular portions ; 2nd sternite also separated into two parts ; 3rd to 7th sternites almost quadrilateral ; 8th abdominal segment very long, oval, its tip slightly surpassing the caudal end of genital capsule ; genital capsule oval ; proctiger large, about half as long as capsule, triangular, tip rounded, almost vertically protruded from capsule. Aedeagus with a minute spine-like ventral prong and a curved dorsal hook, shaft short and thick, roundly angled near base.

TYPE MATERIAL : Holotype male [009], Afiamalu, Upolu, Samoa, 10. VI. 1940, 2200, Swezey &

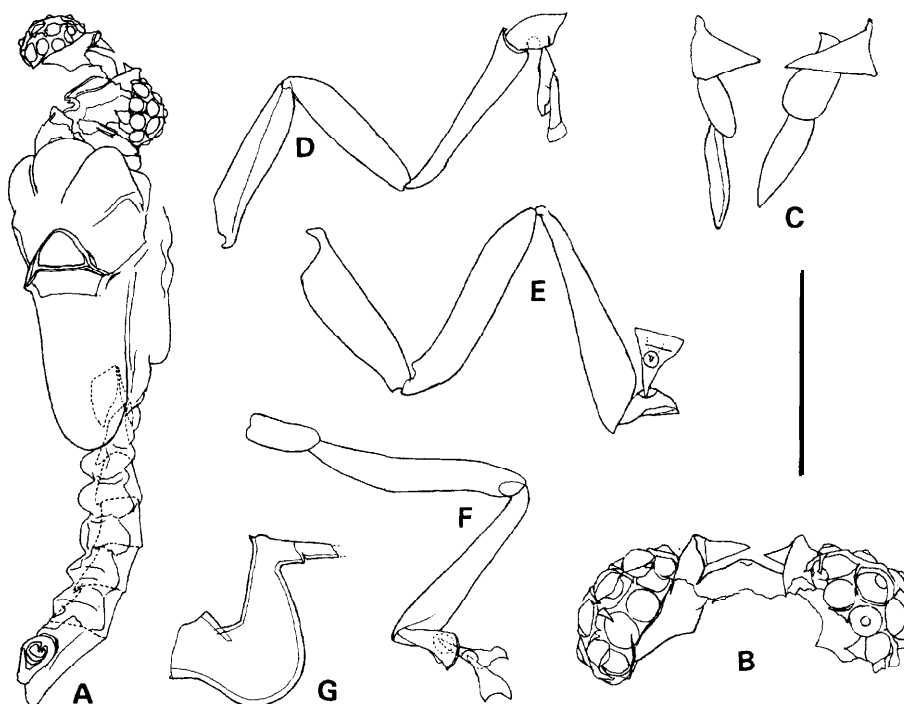


Fig. 7. *Halictophagus elongatus* sp. nov., male, holotype [057]. A : Body, dorsal view. B : Head, dorsal view. C : Mandibles and maxillary palpi, ventral view. D : Left fore leg, ventral view. E : Left mid leg, ventral view. F : Right hind leg, dorsal view. G : Aedeagus, left lateral view. Scale : 1 mm for A, 0.25 mm for C, 0.125 mm for G, 0.5 mm for others.

Zimmerman, at light.

REMARKS. This new species is sympatric with *H. samoanus* sp. nov., but clearly distinguishable by the anteriorly protruded head, long and slender flabella of antennae, larger scutellum, and shorter aedeagus.

12. ***Halictophagus elongatus* sp. nov.** (Fig. 7)

Male

Size. Total length of body 3.16 mm ; length of head and thorax together 1.87 mm ; head breadth 0.81 mm ; radial length of hind wing 2.2 mm ; genital capsule 0.30 mm in length, 0.19 mm in breadth ; diagonal length of aedeagus more than 0.13 mm.

Structure. Head with dorsoposterior portion damaged by insect ; ventral facets larger than dorsal ones, each facet comparatively large ; antennae completely lost ; mandibles triangular with sharp tip ; maxillary palpi 2-segmented, proximal segment oval, as long as distal segment, distal segment lanceolate, tips moderately sharp. Thorax similar to that of the preceding species. Anterior margin of postlumbium slightly curved but not undulated. Abdomen also similar to that of the preceding species including the shapes of stemites. Hind wing also damaged. Genital capsule about half as long as 8th abdominal segment ; proctiger oval, vertically protruded from capsule. Aedeagus without ventral prong, tip of dorsal hook damaged but probably not so short, shaft short, thickened towards base, and angled near base.

TYPE MATERIAL : Holotype male [057], Laos, Luang Prabang (300 m), 11-12. VI. 1960, S. Quate.

REMARKS. This species is closely allied to the preceding species, but differs from it by the shorter maxillary palpi and smaller genital capsule against the 8th abdominal segment.

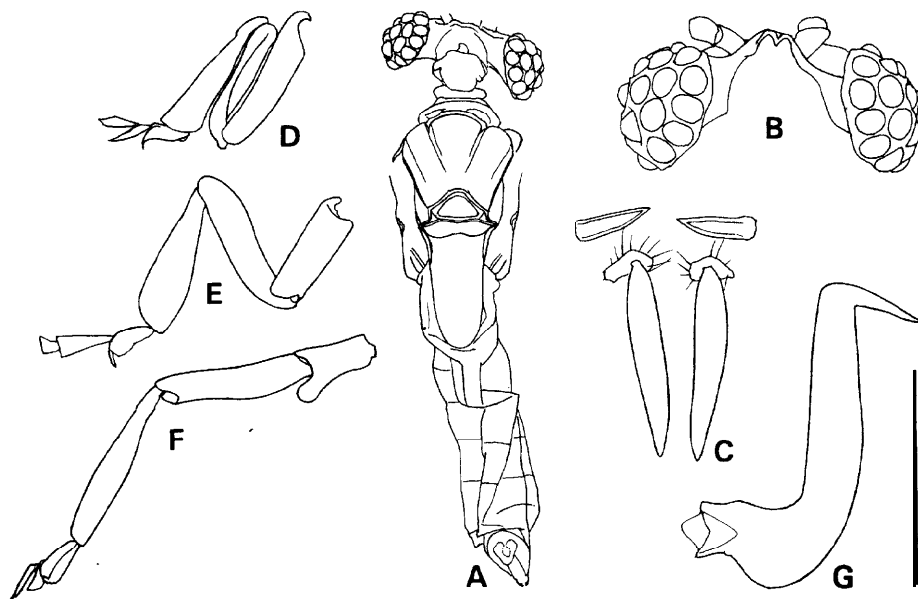


Fig. 8. *Halictophagus eurycephalus* sp. nov., male, holotype [042]. A : Body, dorsal view. B : Head, dorsal view. C : Mandibles and maxillary palpi, ventral view. D : Right fore leg, ventral view. E : Right mid leg, ventral view. F : Right hind leg, ventral view. G : Aedeagus, left lateral view. Scale : 1 mm for A, 0.25 mm for C, 0.125 mm for G, 0.5 mm for others.

13. *Halictophagus eurycephalus* sp. nov. (Fig. 8)

Male

Size. Total length of body 2.44 mm ; length of head and thorax together 1.45 mm ; head breadth 0.71 mm ; metathoracic breadth 0.65 mm ; radial length of hind wing 1.62 mm ; genital capsule 0.38 mm in length, 0.23 mm in breadth ; length of aedeagus 0.18 mm.

Structure. Head transverse, broad, posterior margin deeply concave, vertex slightly protruded ; eyes oval, about 13 large facets visible from above ; both antennae lost except the basal two segments ; mandibles slender, triangular ; maxillary palpi 2-segmented, proximal segment oval, short, distal segment long, fusiform, broadest at about basal third.

Pronotum elliptical ; mesonotum trapezoidal ; anterior margins of prescutum and scuti rounded ; prescutum subtriangular ; scuti rectangular ; prescutum and scuti fused posteriorly ; scutellum pentagonal ; postlumbium trapezoidal, slightly constricted at median line ; postscutellum conical, tip rounded. Legs slender ; tibiae thickened towards tip ; first tarsi curved hemispherically. Hind wing of typical venation.

Abdomen with parallel lateral margins ; caudal end of genital capsule clearly surpassing the tip of 8th abdominal segment ; genital capsule pentagonal, proctiger comparatively small, triangular, vertically protruded from capsule. Aedeagus long, without ventral prong with rounded angle, dorsal hook triangular with sharp tip ; shaft slightly thickened towards base, basally bent to right-angle, exterior margin rounded.

TYPE MATERIAL : Holotype male [042], New Guinea, NETH., Sarmi, 20-23. VII. 1959, T. C. Maa, M. V. light trap.

REMARKS. This new species is allied to *H. jacobsoni* de Meijere, 1908, from Java (= Jawa, Indonesia), but clearly distinguishable by the larger body.

14. *Halictophagus thoracicus* sp. nov. (Fig. 9)

Male

Size. Approximate total length of body 3 mm ; length of head and thorax together 1.85 mm ; head breadth 0.76 mm ; metathoracic breadth 0.68 mm ; genital capsule 0.61 mm in length, 0.30 mm in breadth ; length of aedeagus 0.27 mm.

Structure. Both antennae (except the basal two segments), distal segments of maxillary palpi, almost all tarsal segments, left hind wing and greater parts of right hind wing, and median portion of abdomen were lost by insect damage. Head transverse, posterior margin deeply concave, vertex expanded anteriorly with round margin ; eyes elliptical, about 18 facets visible from above ; mandibles long, triangular ; distal segments of maxillary palpi oval ; pronotum trapezoidal ; acrotergite transverse, anterior and posterior margins undulated ; mesonotum stout, trapezoidal, strongly constricted at median portion, posterior half largely expanded.

Prescutum rhomboid, anterior margin triangularly protruded ; anterior margins of scuti rounded ; scuti rectangular, fused with prescutum posteriorly ; scutellum pentagonal ; postlumbium rectangular, anterior margin slightly curved and concave ; postscutellum broad, lateral margins gently curved, tip rounded, Legs stout ; mid and hind tibiae remarkably thickened towards tip.

Abdomen cylindrical ; 1st sternite divided into two juxtaposed, almost quadrate plates. Genital capsule hexagonal, broadest at about anterior two-fifths, caudal end rounded and a little surpassing the caudal tip of 8th abdominal segment which is sharply pointed ; proctiger circular, obliquely protruded from capsule. Aedeagus with triangular dorsal hook and thick, gently curved shaft.

TYPE MATERIAL : Holotype male [078], North Borneo (SE), Forest Camp, 19 km N. of Kalabakan (60 m), 16. XI. 1962, Y. Hirashima, Malaise trap.

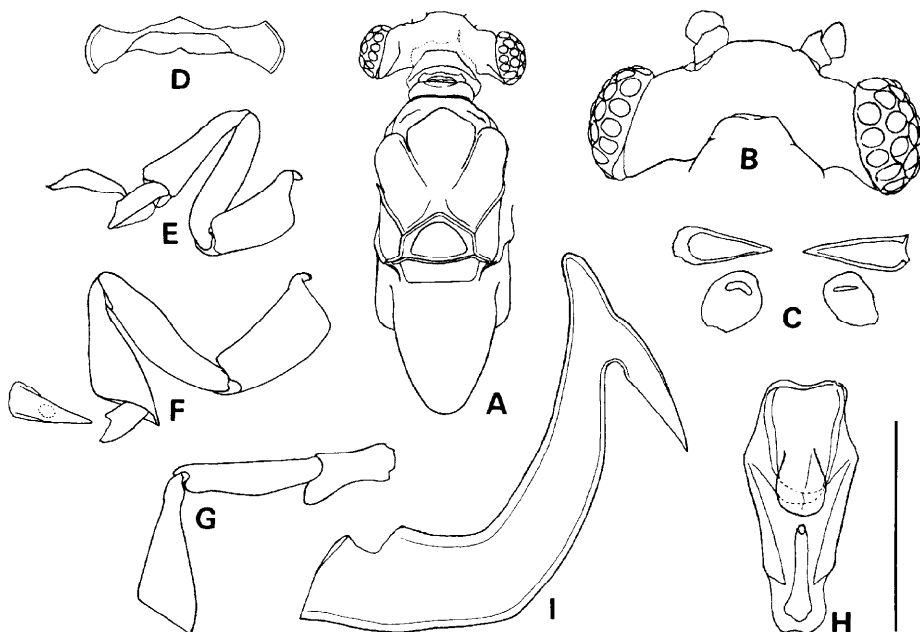


Fig. 9. *Halictophagus thoracicus* sp. nov., male, holotype [078]. A: Head and thorax, dorsal view. B: Head, dorsal view. C: Mandibles and maxillary palpi, ventral view. D: Acrotergite, dorsal view. E: Right fore leg, ventral view. F: Left mid leg, ventral view. G: Left hind leg, dorsal view. H: Genital capsule, caudal view. I: Aedeagus, left lateral view. Scale: 1 mm for A, 0.25 mm for C, 0.125 mm for I, 0.5 mm for others.

REMARKS. This new species is superficially similar to *Coriophagus* spp., but distinguishable by the characteristically broad postscutellum and the shape of aedeagus.

15. *Halictophagus angustipes* sp. nov. (Fig. 10)

Male

Size. Total length of body 2.40 mm; length of metathorax 1.2 mm; head breadth 0.67 mm; length of antenna 0.67 mm; genital capsule 0.40 mm in length, more than 0.18 mm in breadth; length of aedeagus 0.14 mm.

Structure. Head transverse, posterior margin concave; eyes oval, about 14 facets visible in frontal view; antennae with remarkable flabella, 1st segment cup-like, as long as broad, 2nd segment circular, as long as broad, flabellum of 3rd segment longest, but not so broad, flabellum of 4th segment fusiform, broadest at about apical two-fifths, flabella of 4th and 5th segments shortest and narrowest, 7th segment as large as the flabellum of 3rd segment; mandibles short, triangular; maxillary palpi 2-segmented, proximal segment oval, distal segment twice as long as proximal segment, fusiform, with sharp tip.

Pro- and mesonota trapezoidal; prescutum with rounded anterior margin, rhomboid; scuti rectangular, fused with prescutum posteriorly; scutellum pentagonal; postlumbium rectangular, anterior and posterior margins curved at median line so as to approach to each other; postscutellum conical. Legs slender; mid and hind legs with elongated 1st tarsal segment, 2nd and 3rd tarsal segments of all legs triangular. Hind wing with typical venation; detached vein from radius thick and

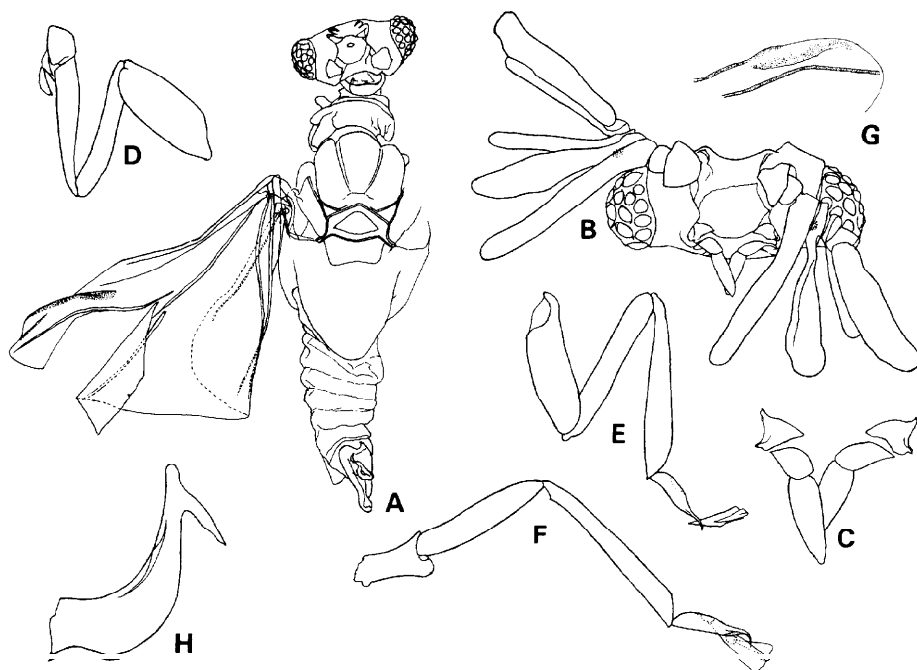


Fig. 10. *Halictophagus angustipes* sp. nov., male, holotype [073]. A: Body and left hind wing, dorsal view. B: Head, dorsal view. C: Mandibles and maxillary palpi, frontal view. D: Right fore leg, ventral view. E: Left mid leg, ventral view. F: Left hind leg, ventral view. G: Anterolateral portion of right hind wing, dorsal view. H: Aedeagus, left lateral view. Scale: 1 mm for A & G, 0.25 mm for C, 0.125 mm for H, 0.5 mm for others.

about two-thirds as long as radius, situated near anterior wing margin.

Abdomen with obvious segmentation, broadest at 3rd segment; sternites of 1st segment divided into two juxtaposed quadrilateral plates. Apex of 8th segment reaching the median level of genital capsule; capsule subtriangular with roundly protruded tip; proctiger oval, obliquely protruded from capsule. Aedeagus with rounded apical projection and a dorsal hook, shaft curved at basal third and gradually thickening towards base.

TYPE MATERIAL: Holotype male [073], North Boreno (SE), Tawau, Quoin Hill, Cocoa Res. Sta., 13. IX. 1962, Y. Hirashima, Malaise trap.

REMARKS. This is characteristic in having the slender legs and the bluntly pointed apical portion of aedeagus.

ELENCHIDAE

16 *Deinelenchus deviatu*s Kinzelbach, 1971

*Deinelenchus deviatu*s Kinzelbach, 1971, Zoologica, (119): 155, Abb. 8Y, 9 (male). Loc.: Fischhafen, New Guinea.

This species is characteristic in having the slender body and the 4-segmented antenna. Only a single specimen is examined, as shown below.

SPECIMEN EXAMINED. NEW GUINEA : 1 male [040], NW, Hol Maffen, 22 km E. of Sarmi, 18-19. VII. 1959, T. C. Maa.

REMARKS. Although the original description was too brief, the present male is identified as *Deinelenchus deviatus* according to the original illustration of antenna (Kinzelbach, 1971, Abb. 8Y).

DISTRIBUTION : New Guinea (Papua, Irian Jaya).

17 *Deinelenchus hamifer* Kinzelbach, 1971

Deinelenchus hamifer Kinzelbach, 1971, Zoologica, (119) : 155, Abb. 59G, 73L', 83W (male).
Loc. : Fischhafen, New Guinea.

This is clearly distinguishable from the preceding species by the 5-segmented antenna and the cylindrical proximal segment of maxillary palpus.

SPECIMENS EXAMINED. NEW GUINEA : 1 male [012], Neth., Hollandia (100 m), 27. VII. 1955, J. L. Gressitt, light trap ; 1 male [044], Neth., Waris, S. of Hollandia (450-500 m), 27-30. VII. 1959, T. C. Maa, at light ; 1 male [045], same locality, 1-7. VIII. 1959, T. C. Maa, at light.

DISTRIBUTION : New Guinea (Papua, Irian Jaya).

18. *Elenchus perkinsi* (Pierce, 1909)

Elenchus tenuicornis (Kirby, 1815) : Perkins, 1905, Rept. exp. Stat. Hawaii. Sugar Pl. Assoc., 1(3) : 106. Loc. : Fiji. — : Muir, 1906, Ibid., 2 : 6, pl. 1, figs. 1-8 (larva, male puparium, female).
Loc. : Fiji. Host : *Perkinsiella vitiensis*.

Elenchoides perkinsi Pierce, 1909, U. S. Natn. Mus., Bull., (66) : 167, pl. 15, fig. 6 (male cephalotheca). Loc. : Fiji. Host : *Perkinsiella vitiensis*. *Elenchus* Curtis, 1831 : Bohart, 1941, Univ. Calif. Publ. Ent., 7(6) : 152. *Elenchoides perkinsi* Pierce, 1909 : Swezey, 1942, B. P. Bishop Mus., Bull., 172 : 173. Loc. : Guam. Host : *Sogata eupompe* (= *Liburnia eupompe*). *Elenchus perkinsi* (Pierce, 1909) : Kinzelbach, 1971, Zoologica, (119) : 156.

The synonymy of the genus *Elenchoides* Pierce (1909) with *Elenchus* Curtis (1831) was pointed out by Bohart (1941) and this statement has been accepted by many authors. The occurrence of the elenchid in Fiji was recorded by Perkins (1905) under the name, *Elenchus tenuicornis*, which was described from Europe and the earliest named species among three species in the genus known from the world at that time, because he doubted the specific separation of those three species. Muir (1906) also confirmed the existence of the elenchid in Fiji and illustrated under the same name. Pierce (1909) named this Fijian elenchid *perkinsi* under his new genus, *Elenchoides*, on the basis of Muir's illustrations.

The present three males from Fiji are considered to be this species although detailed description of the Fijian *perkinsi* is lacking, because two of them were collected in 1905, the year before Muir's visit to Fiji (Jan. 1906), probably by Koebele or a certain person concerned (Cf. Perkins, 1905).

SPECIMENS EXAMINED. FIJI : 2 males [005, 006], Fiji Is., XI. 1905, Fm 40 or 40 Fm (F. Muir ?) ; 1 male [008], Vitilevu, Fiji, Vatuthere, Nr. Nandarivatu, 8. IX. 1938, 2200, E. C. Zimmerman, sweeping grasses.

DISTRIBUTION : Guam, Fiji.

19. *Elenchus perkinsianus* sp. nov. (Fig. 11)

Elenchus tenuicornis (Kirby, 1815) : Perkins, 1905, Rep. Wk. Exp. Stat. Hawaii. Sugar Pl. Assoc., Bull., 1(3) : 106.

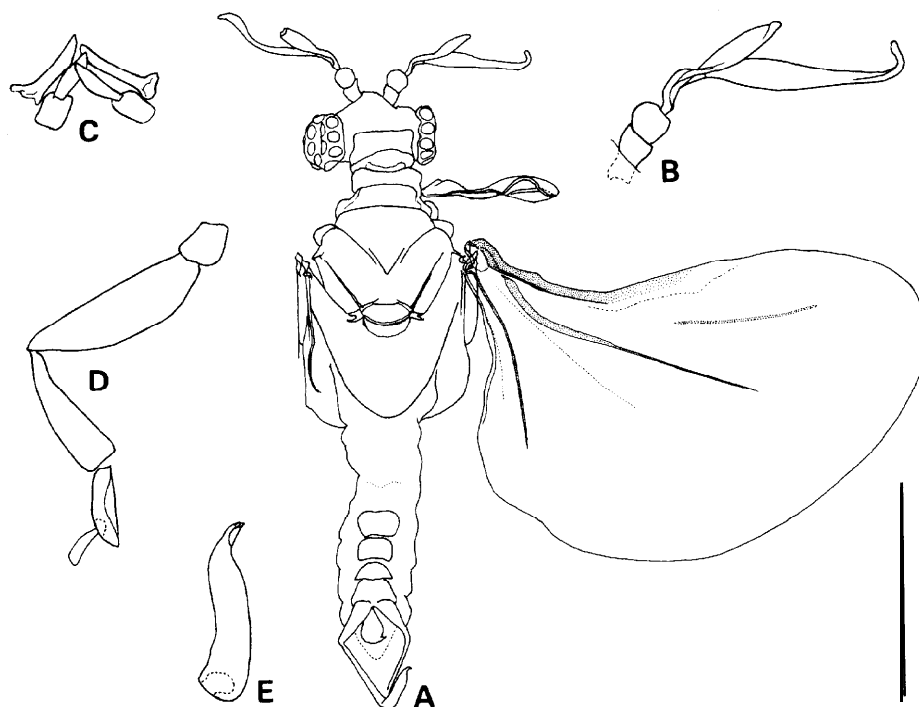


Fig. 11. *Elenchus perkinsianus* sp. nov., male, holotype [001]. A: Body and right hind wing, dorsal view. B: Right antenna, dorsal view. C: Mandibles and maxillary palpi, ventral view. D: Left hind leg, dorsal view. E: Aedeagus, left lateral view. Scale: 0.5 mm for A, 0.125 mm for E, 0.25 mm for others.

Perkins (1905) recorded an elenchid under the name, *Elenchus tenuicornis* Kirb., which was described from Europe, from Columbus (Ohio) and Alameda (California) and wrote "Everywhere abundant in Queensland on *Liburnia* and other Delphacids, and also in Fiji." The elenchids of U. S. A. and of Fiji were later named *Mecynocera koebelei* and *Elenchoides perkinsi* by Pierce (1909), respectively, but that of Queensland (Australia) has been left alone. In the present collection three males from Cairns or Brisbane (both in Queensland) of which collection date are 1904 (!), the period of Perkins who described *Deinelenchus australensis* based on the specimens obtained at the same localities. Comparing the specimens of the preceding species (*E. perkinsi* from Fiji), these Australian elenchid is considered to be different from *perkinsi*, as described below.

Male

Size. Total length of body 1.39 mm; head breadth 0.30 mm; metathoracic breadth 0.43 mm; length of antenna 0.40 mm; radial length of hind wing 1.6 mm; genital capsule 0.26 mm in length, 0.15 mm in breadth; length of aedeagus 0.10 mm.

Structure. Closely allied to the preceding species. Head transverse, frons between antennal bases protruded trapezoidally; antennae 4-segmented, 1st segment trapezoidal, tapered towards base; 2nd segment globular; 3rd segment with long flabellum, 4th segment almost as long as the flabellum of 3rd which is about half as long as 4th; mandibles and maxillary palpi subequal in length; maxillary palpi 2-segmented, proximal segment oval, distal segment fusiform, about one and a half times as long as

proximal segment.

Pronotum rectangular, with almost straight anterior margin ; mesonotum trapezoidal ; prescutum subtriangular, with almost straight anterior margin ; scuti fused posteriorly to each other ; sutures between scuti and parascutella remarkable ; scutellum pentagonal, posterior margin roundly curved ; postlumbium crescent, concave anterior and convex posterior margins roundly curved ; postscutellum triangular, tip rounded. Legs normal ; hind tibia about two-thirds as long as hind femur. Hind wing with typical venation ; media about three-fourths as long as radial length of wing.

Abdomen slender, intersegmental constrictions remarkable ; genital capsule rhomboid ; proctiger oval, not protruding outside of capsule. Aedeagus slightly sinuated, tip acute.

Females, first larva, and host : Cf. Perkins (1905).

TYPE MATERIALS : Holotype male [001] , Brisbane Q., Austr. 6 1904 ; 2 males [002, 003] Cairns/804 (No more data is seen on the label. On the underside of the mounting paper, however, "Brisbane VI. 04" (handwritten with a pencil) is read. These words are essentially similar to those found on the underside of the label of the preceding holotype male.).

REMARKS. This is closely allied to *E. perkinsi* (Pierce, 1909) from Fiji and *E. maorianus* Gourlay, 1953, from New Zealand, but differs from the former by the shorter 3rd antennal segment and slightly shorter aedeagus (0.12 mm in *perkinsi*), and from the latter by the larger body and hind wing.

MYRMECOLACIDAE

20. *Lychnocolax postorbis* Bohart, 1951

Lychnocolax postorbis Bohart, 1951, Wasmann J. Biol., 9(1) : **100**, pl. IV, figs. 41-46 (male). Loc.: Maco, Tagum, Davao, Mindanao, Philippines. — : Kinzelbach, 1971, Zoologica, (119) : 157. — : Kifune, 1983, Kontyû, 49(2) : 328 (male). Loc.: Ipoh, Perak, West Malaysia.

SPECIMEN EXAMINED. NORTH BORNEO : 1 male [032], Kalabakan, 15. XI. 1958, Quate, sweeping at dusk.

DISTRIBUTION : Philippines (Mindanao), Malaysia (Sabah, Malaya). This is the first record of this species from Sabah, Borneo.

21. *Lychnocolax ovatus* Bohart, 1951

Lychnocolax ovatus Bohart, 1951, Wasmann J. Biol., 9(1) : 101, pl. III, figs. 34-40 (male). Loc.: Maco, Tagum, Davao, Mindanao, Philippines. — : Kinzelbach, 1971, Zoologica, (119) : 157.

The present specimen represents the second and a new locality after the original description.

SPECIMEN EXAMINED. NORTH BORNEO : 1 male [033], Kalabakan, Tawau District, 18. XI. 1958, T. Maa, primary forest.

DISTRIBUTION : Philippines (Mindanao), Malaysia (Sabah). This is the first record of this species from Borneo.

22. *Lychnocolax mindanao* Bohart, 1951

Lychnocolax mindanao Bohart, 1951, Wasmann J. Biol., 9(1) : **98**, pl. III, figs. 27-33 (male). Loc.: Maco, Tagum, Davao, Mindanao, Philippines. — : Kinzelbach, 1971, Zoologica, (119) : 157.

Six specimens are examined from new localities, as shown below.

SPECIMENS EXAMINED. NEW IRELAND : 1 male [022], "Camp Bishop", 12 km up Kait R. (240 m),

7. VII. 1956, J. L. Gressitt, light trap : 1 male [023], "Camp Bishop", 15 km up Kait R. (125 m), same date & collector, light trap. NEW GUINEA : 1 male [046], NETH., Waris, S. of Hollandia (450-500 m), 16-23. VIII. 1959, T. C. Maa. PALAU ISLS. : 1 male [011], Koror, IV. 1953, J. W. Beardsley, at light ; 1 male [027], Koror I., Ngerabad, 17. IV. 1957, C. W. Sabrosky, at light ; 1 male [028], Koror I., Limestone ridge, 30. V. 1957, C. W. Sabrosky, at light.

DISTRIBUTION : Bismarck Islands (New Ireland), New Guinea (Irian Jaya), Palau Islands (Koror), Philippines (Mindanao).

23. *Lychnocolax orientalis* Kifune, 1981

Lychnocolax orientalis Kifune, 1981, Kontyû, 49(2) : 328, figs. 29-36 (male). Loc. : Ipoh, Perak, West Malaysia.

SPECIMEN EXAMINED. SOLOMON ISLANDS : 1 male [018], Buka I., Gagan (40 m), 16. VI. 1956, J. L. Gressitt, light trap.

DISTRIBUTION : Solomon Islands (Buka), Malaysia (Malaya). This species is recorded from Solomon Islands for the first time.

24. *Lychnocolax novaeguineae* sp. nov. (Fig. 12)

Male

Size. Total length of body 1.69 mm ; length of head and thorax together 1.01 mm ; head breadth 0.53 mm ; metathoracic breadth 0.50 mm ; length of antenna 0.90 mm ; radial length of hind wing more

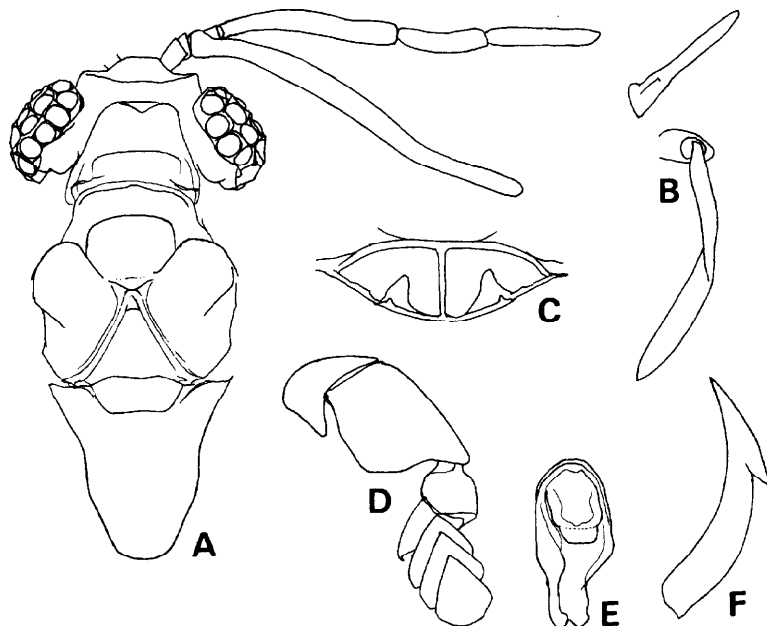


Fig. 12. *Lychnocolax novaeguineae* sp. nov., male, holotype [043]. A : Head and thorax, dorsal view. B : Right mandible and maxillary palpus, ventral view. C : Median portion of mesosternum, ventral view. D : Right hind leg, dorsal view. E : Genital capsule, caudal view. F : Aedeagus, left lateral view.

Scale : 0.5 mm for A & F, 0.25 mm for others.

than 1.26 mm ; genital capsule 0.35 mm in length, 0.17 mm in breadth ; length of aedeagus 0.25 mm.

Structure. Head oval, frons between both antennal basements expanded anteriorly, its margin transversely straight, posterior portion concave ; **eyes** oval, about 10 facets visible from above ; facets of ventral side slightly larger than those of dorsal side ; antennae 7-segmented, flabellum of 3rd segment almost reaching the median point of 7th segment, 5th segment slightly shorter than 6th and 7th segments combined together, 6th segment shorter than 7th ; mandibles not crossing to each other, straight with moderately sharp tips ; maxillary palpi 2-segmented, proximal segment oval, distal segment thin, slender, almost parallel-sided, about five times as long as proximal segment.

Pro- and mesothoraces trapezoidal ; prescutum subquadrate, posteriorly fused with scuti ; scuti rectangular, posteriorly fused with parascutella ; scutellum triangular ; postlumbium fusiform ; post-scutellum conical, not so long ; a pair of spinal projections on the posterior margin of mesosternum triangular. Legs short ; each of 2nd to 4th tarsal segments triangular ; hind tarsi very short, trapezoidal. Hind wing with one detached vein from media.

Abdomen elliptical ; genital capsule elliptical with a posteriorly protruded portion subquadrate ; proctiger circular, with a semicircularly protruded posterior expansion. Aedeagus with sharp ventral prong and shorter dorsal hook ; shaft gently curved.

TYPE MATERIAL : Holotype male [043], New Guinea, NETH., Waris, S. of Hollandia (450-500 m), 27-30. VII. 1959, T. C. Maa, at light.

REMARKS. This is allied to *L. mindanao* Bohart, 1951, and *L. ovatus* Bohart, 1951, from the Philippines, but differs from the former by the longer maxillary palpi and shorter aedeagus, and from

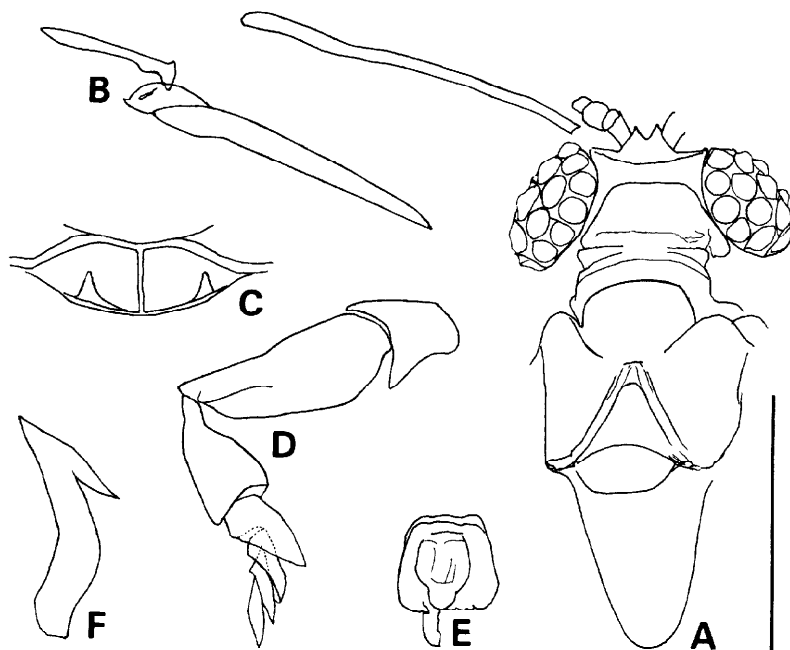


Fig. 13. *Lychnocolax solomon* sp. nov., male, holotype [020]. A : Head and thorax, dorsal view. B : Left mandible and maxillary palpus, ventral view. C : Median portion of mesosternum, dorsal view. D : Right hind leg, ventral view. E : Genital capsule, dorsocaudal view. F : Aedeagus, Left lateral view. Scale : 0.5 mm for A & E, 0.25 mm for others.

the latter by the longer flabellum of the 3rd antennal segment.

25. *Lychnocolax solomon* sp. nov. (Fig. 13)

Male

Size. Total length of body 1.53 mm ; length of head and thorax together 0.98 mm ; head breadth 0.54 mm ; metathoracic breadth 0.42 mm ; radial length of hind wing 1.33 mm ; genital capsule 0.20 mm in breadth ; length of aedeagus 0.22 mm.

Structure. Generally allied to the preceding species. Frons between both antennal basements deeply concave ; about 13 facets visible from above ; mandibles crossing each other, narrowing at about median portion ; 4th and subsequent segments of antennae lost ; flabellum of 3rd segment very long, probably reaching the middle of 7th segment. Maxillary palpi 2-segmented, distal segment about five times as long as proximal segment, thickest at about basal third. Abdomen elliptical, with clear intersegmental constrictions. Genital capsule trapezoidal with subquadrate posterior expansion ; proctiger allied to that of the preceding species. First tarsal segments of hind legs not so short, subtriangular. Aedeagus also allied to that of the preceding species but slightly longer.

TYPE MATERIAL : Holotype male [020], Solomon Is., Guadalcanal, Gold Ridge (500 m), 25. VI. 1956, J. L. Gressitt, light trap.

REMARKS. This is closely allied to the preceding new species, but differs from it by the more slender flabellum of the 3rd antennal segment, V-formed concavity of the frons, longer first tarsal segments of the hind legs, and the shape of the genital capsule.

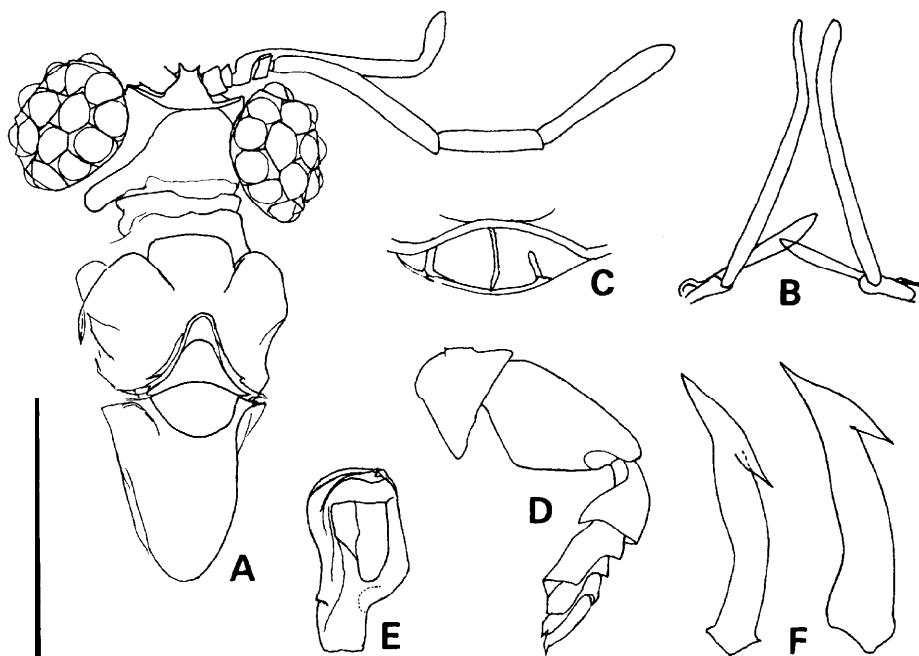


Fig. 14. *Lychnocolax insularis* sp. nov., male, holotype [017] and paratype [014]. A : Head and thorax, dorsal view. B : Mandibles and maxillary palpi, ventral view. C : Median portion of mesosternum, ventral view. D : Left hind leg, ventral view. E : Genital capsule, caudal view. F : Aedeagi of holotype (left) and paratype (right). Scale : 0.5 mm for A & E, 0.25 mm for others.

26. *Lychnocolax insularis* sp. nov. (Fig. 14)

Male

Size. Total length of body 1.69 mm ; length of head and thorax together 0.99 mm ; head breadth 0.60 mm ; metathoracic breadth 0.46 mm ; length of antenna more than 1.0 mm ; radial length of hind wing 1.3 mm ; genital capsule 0.36 mm in length, 0.20 mm in breadth ; length of aedeagus 0.26-0.28 mm.

Structure. Head dumbbell-shaped, not so broad, posterior portion concave, interocular distance almost equal to or shorter than length of eyes ; eyes oval, about 11 large facets visible from above ; frons between antennal basements shallowly concave ; antennae 7-segmented, flabellum of 3rd segment reaching the midpoint of 6th segment, 5th segment longest, 7th segment slightly shorter than 5th, 6th segment slightly longer than half of 5th ; mandibles crossing each other, sword-like ; maxillary palpi 2-segmented, proximal segment oval, distal segment very slender, long, about five times as long as proximal segment.

Pronotum with short anterior margin ; prescutum subtriangular with almost straight anterior margin and rounded angles, fused posteriorly with scuti ; scuti rectangular, also fused posteriorly with parascutella ; scutellum triangular ; postlumbium with anterior and posterior margins curved ; post-scutellum conical ; a pair of rod-like projections on the posterior margin of mesosternum. First tarsal segments of hind legs moderately long, subtriangular. Hind wing with a detached vein from radius. Genital capsule similar to that of the preceding species, proctiger posteriorly elongate. Aedeagus with short ventral prong and short dorsal hook ; shaft slightly curved, thick.

TYPE MATERIALS : Holotype male [017], Solomon Is., Bougainville, Sohano, 13. VI. 1956, J. L.

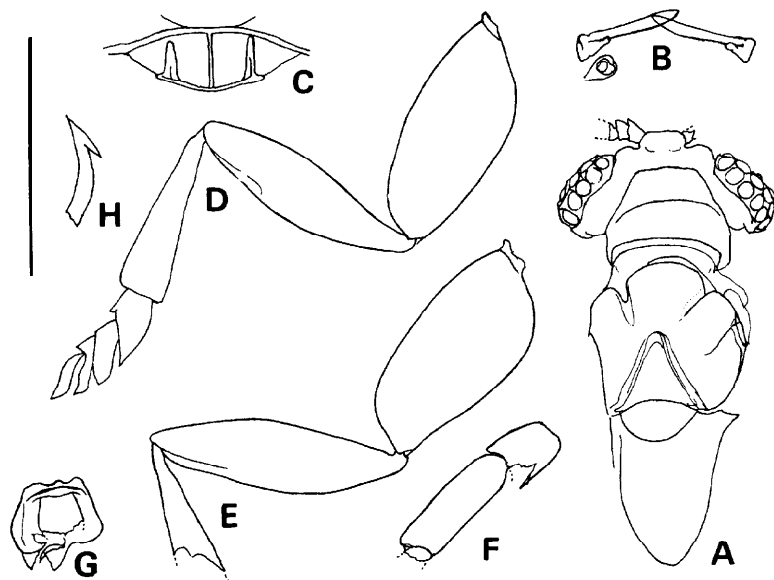


Fig. 15. *Lychnocolax neobritannicus* sp. nov., male, holotype [015]. A : Head and thorax, dorsal view. B : Mandibles, ventral view. C : Median portion of mesosternum, ventral view. D : Right fore leg, ventral view. E : Right mid leg, distal half of tibia and tarsi lost, ventral view. F : Right hind leg, tibia and tarsi lost, ventral view. G : Genital capsule, dorsocaudal view. H : Aedeagus : left lateral view.

Scale : 0.5 mm for A, G, & H, 0.25 mm for others.

Gressitt, light trap ; 1 paratype male [014], New Britain, Gazelle Pen., Baining : St. Paul's (350 m), 5. IX. 1955, J. L. Gressitt.

REMARKS. This species is allied to *L. solomon* sp. nov. but differs from it by the size of eyes larger, facets also larger, flabellum of the 3rd antennal segment shorter, and aedeagus longer.

27. *Lychnocolax neobritannicus* sp. nov. (Fig. 15)

Male

Size. Total length of body 1.35 mm ; length of head and thorax 0.93 mm ; head breadth 0.40 mm ; metathoracic breadth about 0.40 mm ; radial length of hind wing 1.20 mm ; genital capsule 0.20 mm in breadth ; length of aedeagus 0.24 mm.

Structure. Both antennae except basal two segments lost ; maxillary palpi broken ; legs partly lost ; hind wings also slightly broken. Head oval, posterior margin concave, frons between both antennal basements protruded without concavity ; eyes elliptical, remarkably divergent posteriorly, about 10 facets visible from above ; mandibles sword-like, crossing ; proximal segments of maxillary palpi oval. Pro- and mesonota trapezoidal ; prescutum posteriorly fused with scuti ; scuti also posteriorly fused with parascutella ; scutellum triangular ; anterior and posterior margins of postlumbium gently curved ; postscutellum conical, tip rounded ; a pair of spinal projections on the posterior margin of mesosternum conical.

Abdomen short, genital capsule quadrilateral with semicircular posterior expansion ; apical portion of proctiger lost. Aedeagus without ventral prong, apex sharp, and with short dorsal hook ; shaft stout, slightly curved.

TYPE MATERIAL : Holotype male [015], New Britain, Gazelle Pen., Bainings : St. Paul's (350 m), 8. IX. 1955, J. L. Gressitt.

REMARKS. This is allied to *L. novaeguineae* sp. nov., but is smaller, the dorsal facets fewer and the

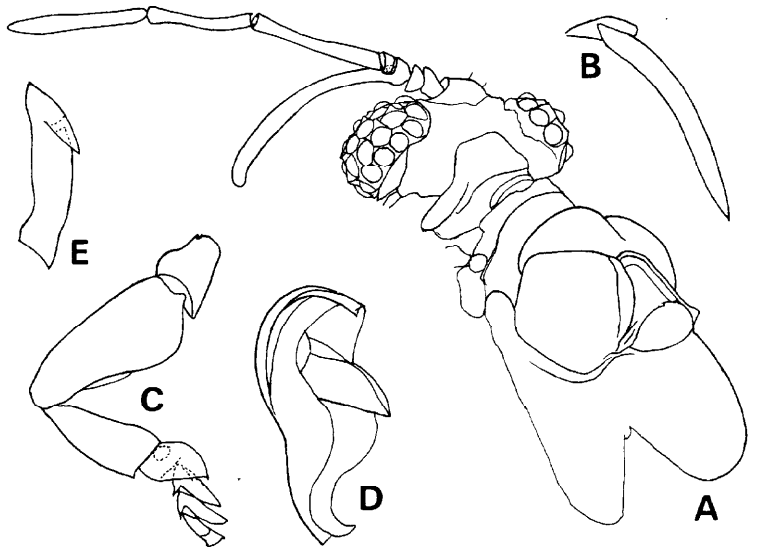


Fig. 16. *Lychnocolax aerius* sp. nov., male, holotype [038]. A: Head and thorax, oblique dorsal view. B: Right maxillary palpus, ventral view. C: Right hind leg, ventral view. D: Genital capsule left lateral view. E: Aedeagus, sinistrocandal view. Scale : 0.5 mm for A, 0.25 mm for others.

mesosternal spines thinner.

28. *Lychnocolax aerius* sp. nov. (Fig. 16)

Male

Size. Total length of body 1.55 mm ; length of head and thorax together 0.98 mm ; head breadth 0.45 mm ; length of antenna 0.88 mm ; metathoracic breadth 0.45 mm ; radial length of hind wing 1.12 mm ; genital capsule 0.36 mm in length ; length of aedeagus 0.16 mm.

Structure. Generally allied to the preceding new species. Head broad, posterior portion concave ; frons between both antennal basements protruded, its anterior margin transversely straight ; **eyes** oval, interior margins diverging posteriorly, about 10 facets visible from above ; antennae 7-segmented, 1st segment trapezoidal, 2nd cup-like, 5th slightly longer than 7th, flabellum of 3rd segment almost reaching the midpoint of 6th segment ; mandibles lost ; maxillary palpi 2-segmented, proximal segment oval, basally tapering, distal segment slender, long, about three times as long as proximal segment.

Pro- and mesonota trapezoidal ; prescutum with rounded anterior margin, posteriorly fused with scuti ; suture between scuti and parascutella obscure ; scutellum triangular ; postlumbium with curved anterior and posterior margins ; postscutellum comparatively short, conical, tip rounded. Legs normal ; hind tibia about two-thirds as long as hind femur. Hind wing with one detached vein between radius and media.

Abdomen elliptical ; genital capsule elliptical, posterior portion prolonged ; proctiger oval, almost vertically protruded from capsule. Aedeagus without ventral prong, apex sharp, dorsal hook sharp but not so long, shaft thick.

TYPE MATERIAL : Holotype male [038], Malaya, Kuala Tahan to Kuala Tembeling, Pahang, 18.

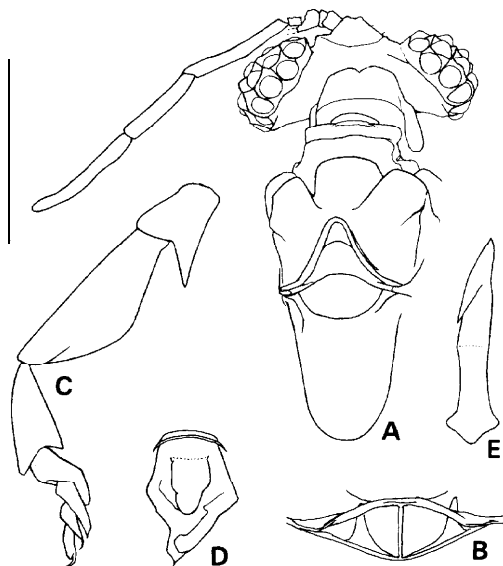


Fig. 17. *Lychnocolax simplex* sp. nov., male, holotype [062]. A : Head and thorax, dorsal view. B : Median portion of mesosternum. C : Right hind leg, ventral view. D : Genital capsule. E : Aedeagus, caudal view. Scale : 0.5 mm for A & D, 0.25 mm for others.

XII. 1958, T. Maa, flying in air about boat.

REMARKS. This is allied to *L. neobritannicus* sp. nov. but distinguishable by the smaller aedeagus. It is very interesting that the specimen was caught in air although it is unknown whether it was in daytime or at night.

29. *Lychnocolax simplex* sp. nov. (Fig. 17)

Male

Size. Total length of body 1.75 mm ; length of head and thorax together 1.14 mm ; head breadth 0.65 mm ; metathoracic breadth 0.52 mm ; length of antenna about 0.65 mm ; radial length of hind wing 1.50 mm ; genital capsule 0.35 mm in length, 0.25 mm in breadth ; length of aedeagus 0.26 mm.

Structure. Head broad, posterior portion concave ; frons between both antennal bases triangularly protruded and slightly concave at midpoint ; eyes oval, composed of large facets, about 10 facets visible from above ; right antenna lost, flabellum of 3rd segment of left antenna also lost, 7th segment a little longer than 5th, 6th about three-fourths as long as 5th ; mandibles and maxillary palpi lost.

Prescutum subtriangular ; scuti rectangular, posteriorly fused with prescutum and parascutella ; scutellum triangular, posterior margin concave ; postlumbium with curved anterior and posterior margins ; postscutellum conical, tip rounded ; a pair of spinary projections on the posterior margin of mesosternum long, surpassing the anterior ridge of mesosternum. Legs normal ; hind tibia half as long as hind femur. Hind wing with a detached vein between radius and media. Genital capsule pentagonal, posterior half triangular ; proctiger subquadrate with oval posterior expansion. Aedeagus without ventral prong, dorsal hook not so long.

TYPE MATERIAL : Holotype male [062], Laos, Vientiane Prov., Ban Van Eue, 30. VI. 1967, native collector.

REMARKS. This new species is allied to *L. solomon* sp. nov. but differs from it by the posteriorly expanded genital capsule, the less curved and longer shaft of the aedeagus, and the longer mesosternal spinary projections.

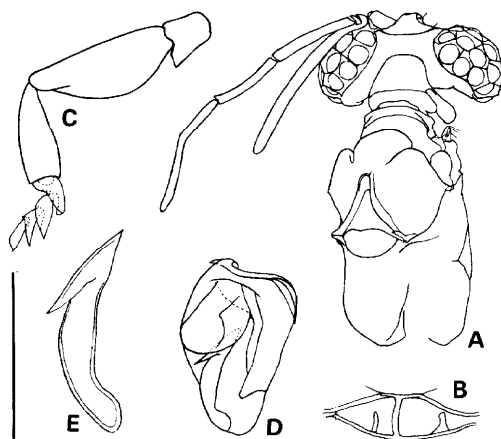


Fig. 18. *Lychnocolax vietnamicus* sp. nov., male, holotype [059]. A : Head and thorax, dorsal view. B : Median portion of mesosternum, ventral view. C : Left hind leg, dorsal view. D : Genital capsule, dextrocaudal view. E : Aedeagus, dextrocaudal view. Scale : 0.5 mm for A, 0.125 mm for E, 0.25 mm for others.

30 *Lychnocolax vietnamicus* sp. nov. (Fig. 18)

Male

Size. Total length of body 1.62 mm ; length of head and thorax together 1.00 mm ; head breadth 0.57 mm ; length of antenna 0.90 mm ; radial length of hind wing about 1.27 mm ; genital capsule 0.24 mm in length, 0.15 mm in breadth ; length of aedeagus 0.12 mm.

Structure. Head transverse, posterior portion concave ; frons between both antennal basements protruded, its margin slightly concave at midpoint ; eyes elliptical, about 10 large facets visible from above ; antennae 7-segmented ; 6th and 7th segments and apical half of flabellum of 3rd segment of right antenna lost ; 7th segment longest, about one and a half times as long as 6th segment, 5th longer than 6th but shorter than 7th ; flabellum of 3rd segment almost as long as 5th and 6th segments combined ; apical halves of mandibles and whole maxillary palpi lost.

Pro- and mesonota trapezoidal ; prescutum subtriangular, fused with scuti posteriorly ; scuti and parascutella completely fused, rectangular ; scutellum triangular ; anterior margin of postlumbium slightly waving, posterior margin roundly curved ; postscutellum conical, with rounded tip ; a pair of spinary projections on the posterior margin of mesosternum slender, basally thickened, triangular, not reaching the anterior ridge of mesosternum. Legs normal ; hind tibiae about two-thirds as long as hind femora, elongate triangular. Hind wing with one detached vein between radius and media.

Abdomen elliptical ; sternite small, quadrate, with rounded angles ; genital capsule pentagonal, posterior portion gradually and gently protruded ; proctiger oval, obliquely protruded from capsule. Aedeagus without ventral prong, apex sharp, dorsal hook with a sharp tip.

TYPE MATERIAL : Holotype male [059], Viet Nam, Karyu Danar (200 m), 13-28. II. 1961, N. R. Spencer.

REMARKS. This species is also allied to *L. simplex* sp. nov. but differs from it by the shorter spinary projections of the mesosternum, the smaller aedeagus, and the shape of the proctiger (no oval posterior expansion).

31. *Lychnocolax chinensis* sp. nov. (Fig. 19)

Male

Size. Total length of body 1.42 mm ; length of head and thorax together 0.91 mm ; head breadth 0.50 mm ; metathoracic breadth 0.49 mm ; length of antenna about 0.80 mm ; radial length of hind wing 1.25 mm ; genital capsule 0.30 mm in length, 0.20 mm in breadth ; length of aedeagus 0.23 mm.

Structure. Head remarkably broad; frons between both antennal basements trapezoidally expanded, anterior margin waving, slightly concave in the middle ; interocular distance about twice as broad as eye length ; eyes oval, slightly diverging posteriorly, about 12 small facets visible from above ; antennae 7-segmented, 1st segment cylindrical, 2nd very short, flabellum of 3rd segment short, almost reaching the tip of 5th segment, 4th comparatively long, almost as broad as long, 5th subequal to 7th ; 6th about three-fourths times as long as 7th ; mandibles short, not crossing ; maxillary palpi 2-segmented, proximal segment oval, distal segment long, slender, with uniform breadth, tip sharp, about three times as long as proximal segment.

Pronotum trapezoidal, anterior margin waving, concave in the middle ; prescutum pentagonal, posteriorly fused with scuti, suture observable ; scuti rectangular, posteriorly fused with parascutella ; scutellum subtrapezoidal, anterior margin waving, medianly concave ; postlumbium rectangular, anterior margin slightly waving, posterior margin almost straight transversely ; postscutellum conical, tip rounded. Legs stout, hind tibia short, triangular, about half as long as hind femur. Hind wing with two detached veins between radius and media.

Abdomen short, elliptical ; each sternite quadrilateral ; genital capsule elliptical, with posteriorly

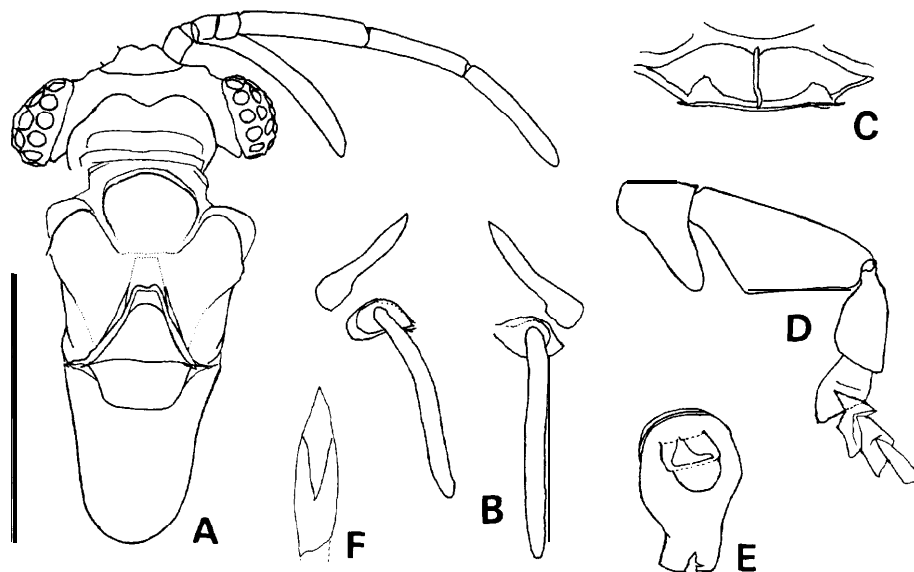


Fig. 19. *Lychnocolax chinensis* sp. nov., male, holotype [109]. A: Head and thorax, dorsal view. B: Mandibles and maxillary palpi, ventral view. C: Median portion of mesosternum, ventral view. D: Right hind leg, dorsal view. E: Genital capsule, caudal view. F: Apical portion of aedeagus, caudal view. Scale: 0.5 mm for A & E, 0.25 mm for others.

protruded quadilateral expansion; proctiger square and with semicircular expansion. Aedeagus with sharp ventral prong and dorsal hook which is subequal in length to the former, shaft remarkably curved.

TYPE MATERIAL: Holotype male [109], Hong Kong, N. T., Sai Kung Station, 24. III. 1965, W. J. Voss & Hui Wai Ming, Malaise trap.

REMARKS. This species is very characteristic in having the head very broad and the scutellum shorter than the other congeneric species; the eyes are also small.

32. *Myrmecolax furcatus* Bohart, 1951

Myrmecolax furcatus Bohart, 1951, Wasmann J. Biol., 9(1): 90, pl. II, figs. 16-19 (male). Loc.: Maco, Tagum, Davao, Mindanao, Philippines; Dimaniang, Busuanga, Calamianes, Philippines. —: Kinzelbach, 1971, Zoologica, (119): 158.

SPECIMEN EXAMINED. NORTH BORNEO: 1 male [030], Sarawak, Bau, lake area, 30. VIII. 1958, MB 192, at light.

DISTRIBUTION: Philippines (Busuanga, Mindanao), Malaysia (Sarawak). This is the first record of this species from Borneo.

33. *Myrmecolax rossi* Bohart, 1951

Myrmecolax rossi Bohart, 1951, Wasmann J. Biol., 9(1): 91, pl. II, figs. 9-15 (male). Loc.: San Jose, Mindoro, Philippines; Dimaniang, Busuanga, Calamianes, Philippines; Maco, Tagum, Davao, Mindanao, Philippines. —: Kinzelbach, 1971, Zoologica, (119): 158. —: Kifune, 1981, Kontyû, 49(2): 330 (male). Loc.: Ipoh, Perak, West Malaysia.

Thirteen specimens are examined. This species may be widely distributed in Southeast Asia.

SPECIMENS EXAMINED. PHILIPPINES : 1 male [098], Mt. Montalban, Rizal, Wa-wa Dam (150-200 m), 23. II. 1965, H. M. Torrevillas ; 2 males [099,100], same locality, 26. II. 1965, same collector, light trap ; 2 males [101,102], same locality, 3. III. 1965, same collector, light trap ; 1 male [103], same locality, 6. III. 1965, same collector, light trap ; 5 males [104, 105, 106, 107, 108], Luzon, Rizal Prov., Wa-wa Dam, Mt. Montalban (150 m), 13. III. 1965, same collector, light trap ; 1 male [079], Camarines Sur, Mt. Isarog (750-850 m), 13-15. V. 1963, same collector. HONG KONG : 1 male [087], Lantau I., Trappist Monastery to Silver Mine Bay (over hills), 24. VII. 1964, W. J. Voss.

REMARKS. Among the examined specimens, 4 examples [102, 108, 079, & 087] are larger but no differences are observed in morphology.

DISTRIBUTION : Philippines (Luzon, Mindoro, Busuanga, Mindanao), Malaysia (Malaya), Hong Kong.

34. *Myrmecolax odontognathus* Kogan et Oliveira, 1964

Myrmecolax odontognathus Kogan et Oliveira, 1964, *Studia ent.*, 7(1-4): 462, figs. 15-27 (male).

Loc. : Peria Creek, Kwagiro River, Papua, New Guinea. — : Kinzelbach, 1971, *Zoologica*, (119): 158.

Twenty specimens are examined. Some specimens have broader prothorax than the type shown in the original description.

SPECIMENS EXAMINED. SOLOMON ISLANDS : 1 male [058], Santa Ysabel, Sukapisu (900 m), 19. VI. 1960, C. W. O'Brien, light trap ; 1 male [090], Santa Ysabel, Buala, 20. VIII. 1964, R. Straatman, light trap ; 1 male [096], Florida Is., Nggela I., Haleta (O-50 m), 14. X. 1964, same collector, light trap ; 1 male [055], Guadalcanal, Tathimani ca 11 mi SE Tetera, 13. V. 1960, C. W. O'Brien, light trap. NEW BRITAIN : 1 male [013], Gazelle Pen., Bainings : St. Paul's (350 m), 4. IX. 1955, J. L. Gressitt, light trap ; 1 male [077], Gazelle Pen., Mt. Sinewit (900 m), 10. XI. 1962, J. Sedlacek, light trap. NEW GUINEA : 1 male [054], NE, Kassam (1,350 m), 48 km E. of Kainantu, 7. XI. 1959, T. C. Maa ; 1 male [053], NE, Kainantu (1,650 m), 20-26. X. 1959, T. C. Maa, M. V. light trap ; 1 male [088], Papua, Oriomo R. (3 m), 1. VIII. 1964, H. Clissoid, light trap ; 1 male [097], SE, Murua River (S. side) (10 m), 22. XII. 1964, J. Sedlacek, malaise trap ; 2 males [047,048], NETH, Waris, S. of Hollandia (450-500 m), 16-23. VIII. 1959, T. C. Maa, at light ; 1 male [051], same locality, 24-31. VIII. 1959, same collector, at light ; 2 males [068,069], West New Guinea, Nabire (5-50 m), 25. VIII-Z. IX. 1962, H. Holtmann, light trap ; 1 male [075], NW, Nabire, S. Geelvink Bay, 17. IX. 1962, same collector, light trap ; 1 male [063], NW, SE Biak I., 1. VII. 1962, J. L. Gressitt & J. Sedlacek. PHILIPPINES : 1 male [110], Albay Province, Libon, Caguscus (200 m), 22. V. 1965, H. M. Torrevillas, light trap. BORNEO : 1 male [074], SE, Tawau, Quoin Hill, Cocoa Res. Sta., Sabah, 14. IX. 1962, Y. Hirashima, light trap ; 1 male [031], Sarawak, Tebang, 5. IX. 1958, MB 299, at light.

DISTRIBUTION : Solomon Islands (Santa Ysabel, Nggela, Guadalcanal), New Britain, New Guinea (Papua, Irian Jaya, Biak I.), Philippines (Luzon), Borneo (Sabah, Sarawak).

35. *Myrmecolax genitalis* sp. nov. (Fig. 20)

Male

Size. Total length of body 2.50 mm ; length of head and thorax together 1.53 mm ; head breadth 0.70 mm ; metathoracic breadth 0.63 mm ; radial length of hind wing 0.88 mm ; genital capsule 0.44 mm in length, 0.22 mm in breadth ; length of aedeagus 0.27 mm.

Structure. Head transverse, posterior portion concave, frons between both antennal basements triangularly protruded, sulcus verticalis undulated ; eyes large, about 10 large facets visible from

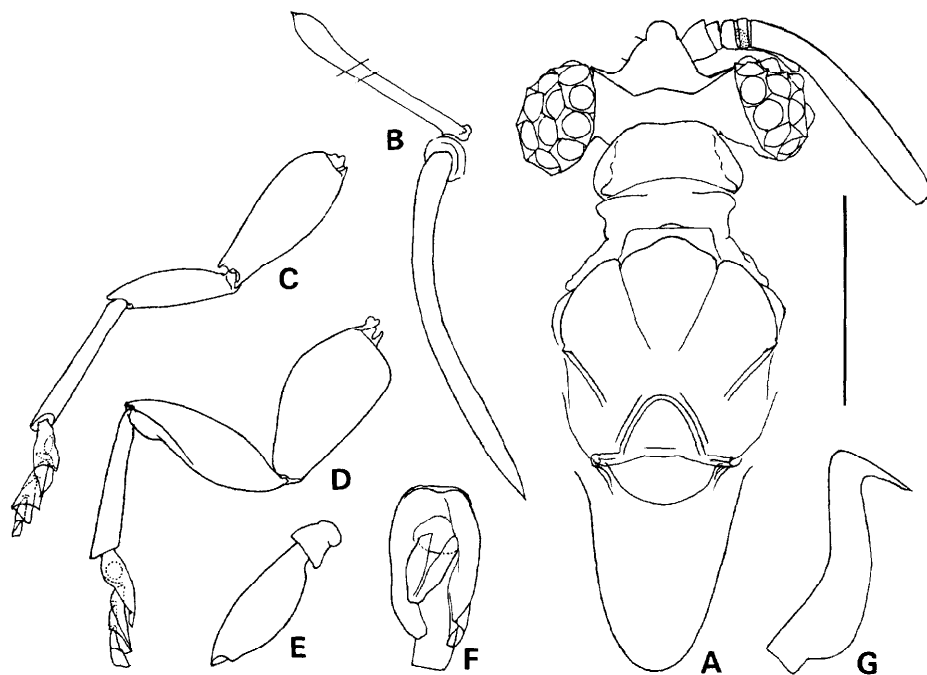


Fig. 20. *Myrmecolax genitalis* sp. nov., male, holotype [111]. A: Head and thorax, dorsal view. B: Left mandible and maxillary palpus, ventral view. C: Right fore leg, ventral view. D: Right mid leg, ventral view. E: Left hind leg, dorsal view. F: Genital capsule, caudal view. G: Aedeagus, left lateral view. Scale: 0.25 mm for B & G, 0.5 mm for others.

above; antennae partly broken; 1st segment subcylindrical, as long as broad, 2nd cup-form, 3rd and 4th short, 5th very long, gradually thickened towards distal four-fifths of its length; mandibles long, sword-like, crossing each other; maxillary palpi 2-segmented, proximal segment very short, almost circular; distal segment very long, gently curved, lanceolate, about 8 times as long as proximal segment.

Pronotum trapezoidal, anterior margin slightly concave at median portion; mesonotum trapezoidal, slightly constricted at median portion; prescutum rhomboid, fused with scuti posteriorly; scuti and parascutella fused posteriorly; scutellum subtriangular, anterior angle rounded; postlumbium semicircular; postscutellum conical. Legs normal, right hind leg and tibia and subsequent segments of left hind leg lost. Hind wing broken, terminal bifurcation of detached vein from radius conspicuous.

Abdomen slender, intersegmental constrictions obvious; genital capsule elliptical, with subquadrate posterior process; proctiger oval, obliquely protruded from capsule. Aedeagus without ventral prong, apex rounded, dorsal hook straight, with acute tip, produced from shaft with acute angle; shaft gently tapered towards apex, slightly bent at median portion.

TYPE MATERIAL: Holotype male [111], Laos, Sayaboury Prov., Sayaboury, 15. I. 1966, native collector, light trap.

REMARKS. This is characteristic in having the aedeagus with rounded apex and without ventral prong. These characters are similar to those of *M. nietneri* Westwood, 1858, from Sri Lanka, but the

new species differs from *nietneri* by the longer dorsal hook and the thick shaft of the aedeagus.

SPECIMEN EXAMINED : 1 male [037], Malaya, Pahang, King George V National Park, Kuala Trang-gan, 15, 17. XII. 1958, J. L. Gressitt, and T. C. Maa.

36. *Stichotrema retrorsum* (Bohart, 1951)

Rhipidocolax retrorsus Bohart, 1951, Wasmann J. Biol., 9(1) : 94, pl. I, figs. 5-8 (male). Loc. : Maco, Tagum, Davao, Mindanao, Philippines.

Stichotrema retrorsum (Bohart, 1951) : Kinzelbach, 1971, Zoologica, (119) : 159. — : Kifune, 1981, Kontyû, 49(2) : 330 (male). Loc. : Ipoh, Perak, West Malaysia.

SPECIMEN EXAMINED. NORTH BORNEO : 1 male [035], Tawau District, Kalabakan, 19. XI. 1958, T. Maa, M-V trap.

DISTRIBUTION : Philippines (Mindanao), Malaysia (Sabah, Malaya).

37. *Stichotrema acutipenis* Kogan et Oliveira, 1964

Caenocholax (Rhipidocolax) acutipen(n)is Kogan et Oliveira, 1964, Studia ent., 7(1-4) : 467, figs. 45-51 (male). Loc. : Gurakor, Wampit R. Valley, Morobe District, 45 mi. from Lae (670 m), New Guinea.

Stichotrema acutipennis (Kogan et Oliveira, 1964) : Kinzelbach, 1971, Zoologica, (119) : 158.

Stichotrema acutipenis (Kogan et Oliveira, 1964) : Kifune et Hirashima, 1983, Esakia, (20) : 161 (male). Loc. : Talawila (100 ft.), Wilpattu Park, Put. Dist., Sri Lanka.

Stichotrema dallatorreanum Hofeneder, 1910 : Luna de Carvalho, 1972, Ciênc. biol., 1 : 1, figs. 1-16 (male, female, first larva). Loc. : Mapric (+ Schouten Is., Pak Is., and Gurakor-already known localities).

SPECIMENS EXAMINED. NEW GUINEA : 1 male [049], NETH., Waris, S. of Hollandia (450-500 m), 16-23. VIII. 1959, T. C. Maa, at light. NORTH BORNEO : 2 males [070, 071], Tawau, Quoin Hill, Cocoa Res. Sta. (225 m), 11. IX. 1962, K. J. Kuncharia. AUSTRALIA : 1 male [060], Cape York, Top Rocky Yard, Rocky R., NE of Coen (150 m), 30. IV. 1961, L. & M. Gressitt.

REMARKS. This species was described on the basis of the male, while *S. dallatorreanum* was described by the female only discovered from *Sexava* spp. (Orthoptera : Mecopodidae). As cited above, Luna de Carvalho (1972) considers that both are conspecific. As described below, however, the males of several allied species have been collected in these areas. Therefore, we deal *acutipenis* as an independent species.

DISTRIBUTION (for *acutipenis*) : New Guinea (Papua, Irian Jaya), Borneo (Sabah), Sri Lanka.

38. *Stichotrema fijiense* sp. nov. (Fig. 21)

Male

Size. Total length of body 1.97 mm ; length of head and thorax together 1.24 mm ; head breadth 0.62 mm ; length of antenna 1.55 mm ; metathoracic breadth 0.58 mm ; radial length of hind wing 1.60 mm ; genital capsule 0.40 mm in length, 0.23 mm in breadth ; length of aedeagus 0.21 mm.

Structure. Head transverse, posterior portion concave ; frons between both antennal basements triangularly protruded ; eyes large, about 14 large facets visible from above ; antennae 7-segmented, each segment flattened, 1st segment as long as broad, 2nd to 4th short, disc-like, 3rd with large flattened flabellum, its tip reaching the end of 7th, 5th curved, broadest at about apical third of its length, a little shorter than 6th and 7th combined together, 6th about two-thirds times as long as 7th ; mandibles very slender, curved, apical portion slightly broadened, crossing ; maxillary palpi 2-segmented, proxi-

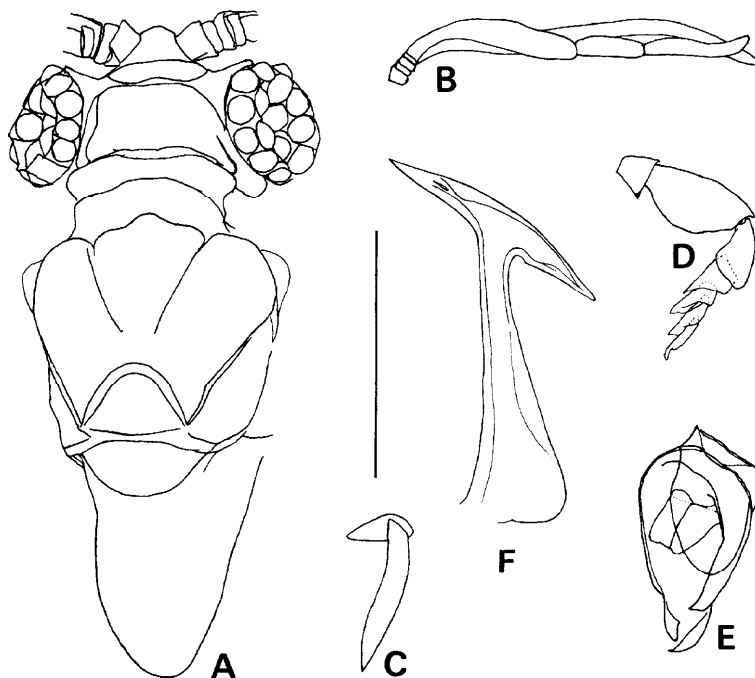


Fig. 21. *Stichtotremu fijiense* sp. nov., male, holotype [007]. A: Head and thorax, dorsal view. B: Right antenna, dorsal view. C: Right maxillary palpus, ventral view. D: Left hind leg, ventral view. E: Genital capsule, dorsocaudal view. F: Aedeagus, left lateral view. Scale: 1 mm for B, 0.125 mm for F, 0.5 mm for others.

mal segment oval, distal segment fusiform, a little more than twice as long as proximal segment.

Pro- and mesonota trapezoidal; mesonotum constricted at median portion; prescutum rhomboid, anterior margin slightly waving; scuti rectangular, posteriorly fused with prescutum; scutellum with rounded anterior margin, subtriangular; postlumbium semicircular; postscutellum conical. Legs normal; hind femur thick, hind tibia subtriangular; each of 2nd to 4th tarsi short, triangular. Hind wing with one detached vein from radius.

Abdomen short; genital capsule large, oval, about half as long as abdomen, proctiger subquadrate, obliquely protruded from capsule. Aedeagus with dorsal hook and ventral prong of equal length; shaft tapering towards apex.

TYPE MATERIAL: Holotype male [007], Fiji, Ovalau, X. 1924, E. H. O'Brien, Jr.

REMARKS. This new species is closely allied to *S. davao* (Bohart, 1951), from the Philippines, but differs from it by the larger body, longer mandibles, subquadrate proctiger, longer detached vein of hind wing, etc. This is also allied to *S. krombeini* Kifune et Hirashima, 1980, and *S. simile* Kifune et Hirashima, 1980, from Sri Lanka, but differs from the former by the larger body and 7th antennal segment being longer than 6th segment, and from the latter by the broader interocular distance, the protruded frons, and the proctiger subquadrate.

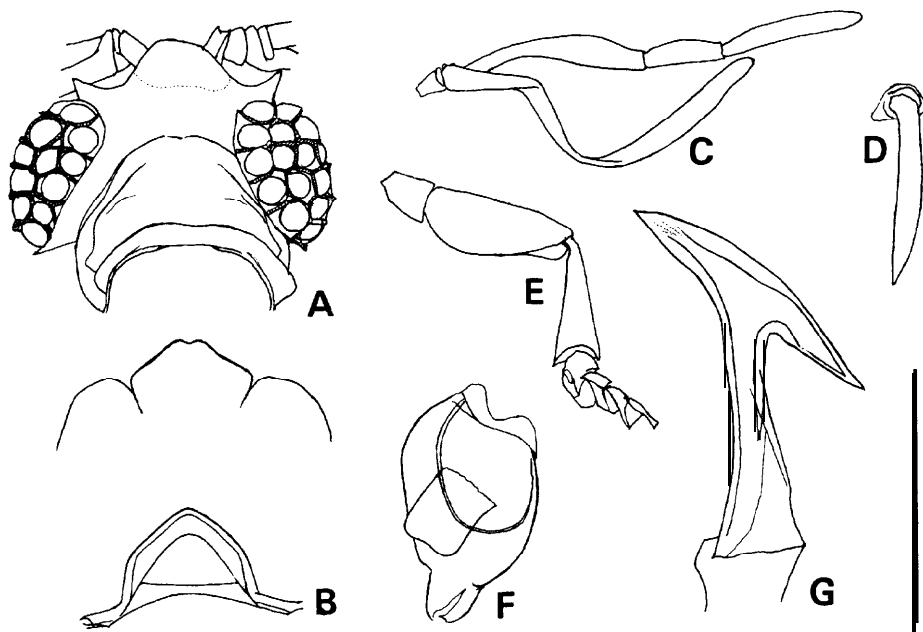


Fig. 22. *Stichotrema capito* sp. nov., male, holotype [016]. A : Head, pro- and mesothoraces, dorsal view. B : Anterior margin of metanotum and scutellum, dorsal view. C : Left antenna, ventral view. D : Right maxillary palpus, ventral view. E : Right hind leg, dorsal view. F : Genital capsule, dorsocaudal view. G : Aedeagus, left lateral view. Scale : 1 mm for C, 0.125 mm for G, 0.5 mm for others.

39. *Stichotrema capito* sp. nov. (Fig. 22)

Male

Size. Head breadth 0.61 mm ; length of antenna 1.63 mm ; metathoracic breadth 0.60 mm ; radial length of hind wing 1.58 mm ; genital capsule 0.45 mm in length, 0.28 mm in breadth ; length of aedeagus 0.20 mm.

Structure. Head transverse, anterior portion broadly protruded, frons between both antennal base-ments roundly protruded, posterior portion deeply concave ; preocular portions spinary protruded ; eye large, about 14 facets visible from above ; antennae with flattened segments, flabellum of 3rd segment completely reaching the tip of 7th, 1st cylindrical, slightly longer than broad, 2nd subspherical, 3rd and 4th short, 5th twice as long as 6th, 6th a little longer than one-half of 7th ; mandibles very slender, apical portion a little broadened, barely crossing to each other ; maxillary palpi similar to those of the preceding species, distal segment about thrice as long as proximal segment.

Pro- and mesonota trapezoidal ; prescutum rhomboid, anterior margin subtriangularly protruded, medianly concave, posteriorly fused with scuti ; scuti rectangular, posteriorly fused with prescutum and parascutella ; scutellum pentagonal exteriorly but triangular interiorly ; postlumbium and post-scutellum damaged. Legs normal ; hind tibia long, slightly shorter than hind femur. Hind wing with one detached vein near radius.

Abdomen damaged. Genital capsule and aedeagus very similar to those of the preceding species.

TYPE MATERIAL : Holotype male [016], Fiji, Vanua Levu, Wailevu, 9. X. 1955, J. L. Gressitt.

REMARKS . This new species is most closely allied to the preceding new species, but distinguishable

by the larger facets, the remarkably undulating and protruded anterior margin of the head, and the slender hind tibia.

40. *Stichotrema laticeps* sp. nov. (Fig. 23)

Male

Size. Length of head and thorax together 1.26 mm ; head breadth 0.65 mm ; length of antenna 0.98 mm ; metathoracic breadth 0.73 mm ; radial length of hind wing 1.45 mm ; genital capsule 0.56 mm in length ; length of aedeagus 0.24 mm.

Structure. Head very broad, transverse, posterior portion deeply concave, frons between both antennal basements triangularly protruded, apex two-pointed ; interior margins of eyes diverging posteriorly ; about 10 facets visible from above ; ratios of 5th : 6th : 7th antennal segments as 4 : 2 : 3 ; flabellum of 3rd segment almost reaching the midpoint of 6th segment ; mandibles sword-like, barely crossing to each other; maxillary palpi Z-segmented, proximal segment oval or trapezoidal, distal segment about thrice as long as proximal segment.

Pro- and mesonota trapezoidal, a little narrower than interocular distance ; prescutum rhomboid, with slightly medianly angled anterior margin, fused with scuti posteriorly ; suture between scuti and

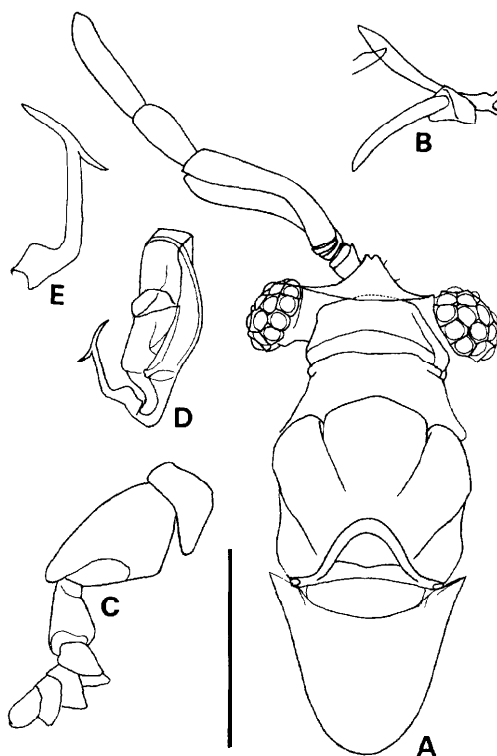


Fig. 23. *Stichotrema laticeps* sp. nov., male, holotype [024]. A : Head and thorax, dorsal view. B : Left mandibles and maxillary palpus, ventral view. C : Right hind leg, ventral view. D : Genital capsule, dextrocaudal view. E : Aedeagus, left lateral view. Scale : 0.5 mm for A & D, 0.25 mm for others.

parascutella almost complete ; scutellum with rounded anterior margin, subtriangular ; postlumbium elliptical ; postscutellum basally broad, conical, with rounded tip. Legs rather stout, hind femur almost triangular, hind tibia short, trapezoidal, shorter than one-half of hind femur ; each tarsus triangular, short. Hind wing probably without detached vein near radius.

Abdomen short ; genital capsule large, oval, with subquadrate posterior process ; proctiger subtriangular, almost vertically protruded from capsule. Aedeagus with longer ventral prong and short dorsal hook, shaft remarkably bent near base.

TYPE MATERIAL : Holotype male [024], New Ireland (SW), "Camp Bishop", 15 km up Kait R. (125 m), 8. VII. 1956, J. L. Gressitt, light trap.

REMARKS. This is allied to *S. acutipenis* (Kogan et Oliveira, 1964) from New Guinea, but differs from it by the broader head and pronotum and the longer interocular distance.

41. *Stichotrema silvaticum* sp. nov. (Fig. 24)

Male

Size. Length of body 1.95-2.06 mm ; length of head and thorax together 1.10-1.36 mm ; head breadth 0.54-0.60 mm ; metathoracic breadth 0.54 mm ; radial length of hind wing 1.23 mm ; genital capsule 0.45-0.47 mm in length, 0.20-0.21 mm in breadth ; length of aedeagus 0.22-0.26 mm.

Structure. Head moderately broad, posterior portion concave ; frons between both antennal base-ments triangularly protruded, apex two-pointed ; eyes oval, interior margins of eyes divergent posteriorly ; about 10 large facets visible from above ; antennae with flattened segments, ratios of lengths

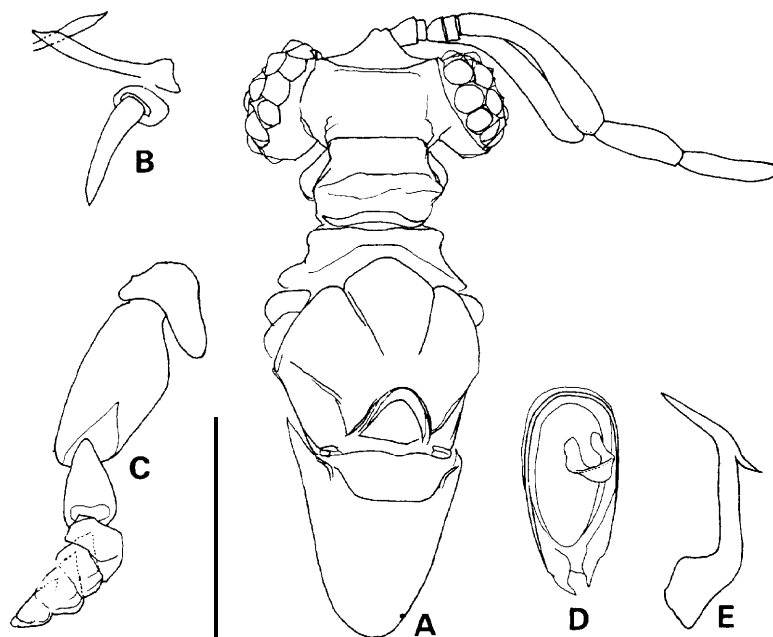


Fig. 24. *Stichotrema silvaticum* sp. nov., male, holotype [076]. A : Head and thorax, dorsal view. B : Left mandible and maxillary palpus, ventral view. C : Right hind leg, ventral view. D : Genital capsule, caudal view. E : Aedeagus, left lateral view. Scale : 0.5 mm for A & D, 0.25 mm for others.

of 5th : 6th : 7th antennal segments as 8 : 4 : 5 ; flabellum of 3rd segment short, barely reaching the base to basal third of 6th segment ; mandibles similar to those of the preceding species ; maxillary palpi with thick and short proximal segment, distal segment about twice as long as proximal segment, gently tapered towards tip.

Pro- and mesonota similar to those of the preceding species ; prescutum rhomboid, fused with scuti posteriorly ; sutures between scuti and parascutella complete ; scutellum triangular ; postlumbium with medianly concave anterior margin and almost transversely straight posterior margin ; postscutellum conical with rounded tip. Legs stout, generally allied to those of the preceding species. Hind wing without detached vein near radius.

Abdomen broad but short ; genital capsule elliptical, with quadrate posterior process. Aedeagus closely allied to that of the preceding species.

TYPE MATERIAL : Holotype male [076], North Borneo (SE), Tawau, Quoin Hill, Cocoa Res. Sta., 3. X. 1962, Y. Hirashima, primary forest ; paratype male [036], North Borneo, Gomantong Cave, 22. XI. 1958, Maa & Quate.

REMARKS. This new species is allied to the preceding species, but differs from it by the narrower and longer head, the longer eyes, and the shorter distal segment of the maxillary palpi.

Table 1. No. of species/specimens examined.

Locality	Genus	<i>Triozocera</i>	<i>Cortiophagus</i>	<i>Halictophagus</i>	<i>Damulenus</i>	<i>Elenchus</i>	<i>Lychnocolax</i>	<i>Myrmecolax</i>	<i>Stichtrema</i>	Total
Hong Kong							1/ 1	1/ 1		2/ 2
Viet Nam							1/ 1			1/ 1
Laos		1/ 1		1/ 1			1/ 1	1/ 1		4/ 4
Malaya							1/ 1	1/ 1		2/ 2
North Borneo		1/ 1		2/ 2			2/ 2	2/ 3	3/ 5	10/ 13
Philippines : Luzon								2/ 13		2/ 13
Negros		1/ 1								1/ 1
Leyte				1/ 1						1/ 1
Palau : Koror							1/ 3			1/ 3
New Guinea: Neth.		1/ 5			2/ 4		2/ 2	1/ 3	1/ 1	7/ 15
NE		1/ 2	1/ 1	2/ 2				1/ 6		5/ 11
Papua								1/ 1		1/ 1
Biak Is.								1/ 1	1/ 1	2/ 2
New Britain							2/ 2	1/ 2		3/ 4
New Ireland							1/ 2		1/ 1	2/ 3
Solomon : Buka							1/ 1			1/ 1
Bougainville		1/ 2					1/ 1			2/ 3
Santa Yasbel		1/ 1						1/ 2		2/ 3
Nggela								1/ 1		1/ 1
Guadalcanal		1/ 3	1/ 1				1/ 1	1/ 1		4/ 6
Fiji						1/ 3			2/ 2	3/ 5
Samoa : Upolu				2/ 2						2/ 2
American Samoa : Tutuila				1/ 9						1/ 9
Australia				1/ 1		1/ 3			1/ 1	3/ 5
Total		4/ 16	2/ 2	9/ 18	2/ 4	2/ 6	12/ 18	4/ 36	7/ 11	42/ 111

***Neostichotrema* subgen. nov.**

(gender : neuter)

Male

Small-sized ; general morphology allied to that of *Stichotrema* (*s. str.*) by the numbers of antennal segments (7), of tarsal segments (4), and absence of fragmental veins between radius and media in hind wing. Head remarkably short, transversely expanded in dorsal view. Aedeagus without ventral prong, apex rounded, shaft medially broadened. Sixth and 7th antennal segments combined as long as or less than 5th segment.

Type species : *Stichotrema* (*Neostichotrema*) *gressitti* subgen. et sp. nov.

42. ***Stichotrema* (*Neostichotrema*) *gressitti* subg. et sp. nov.** (Fig. 25)**Male**

Size. Total length of body 0.90 mm ; length of head and thorax together 0.63 mm ; head breadth 0.37 mm ; metathoracic breadth 0.33 mm ; radial length of hind wing 0.88 mm ; genital capsule 0.24 mm in length, 0.13 mm in breadth ; length of aedeagus 0.16 mm.

Structure. Head remarkably transverse ; eyes twice as long as head ; divergent posteriorly ; each eye composed of about 12 facets ; antennae thin, 1st to 4th segments very short, flabellum of 3rd as long as 5th, 6th as long as 7th, tip of 7th pointed, 5th about 3 times as long as 6th.

Pronotum short but broad, rectangular ; mesonotum trapezoidal ; prescutum oval, scuti rectangular, posteriorly fused with prescutum and parascutella ; scutellum subtriangular, anterior margin rounded ; postlumbium crescent ; postscutellum oval with rounded tip. Legs slender. Hind wing without fragmental vein between radius and media.

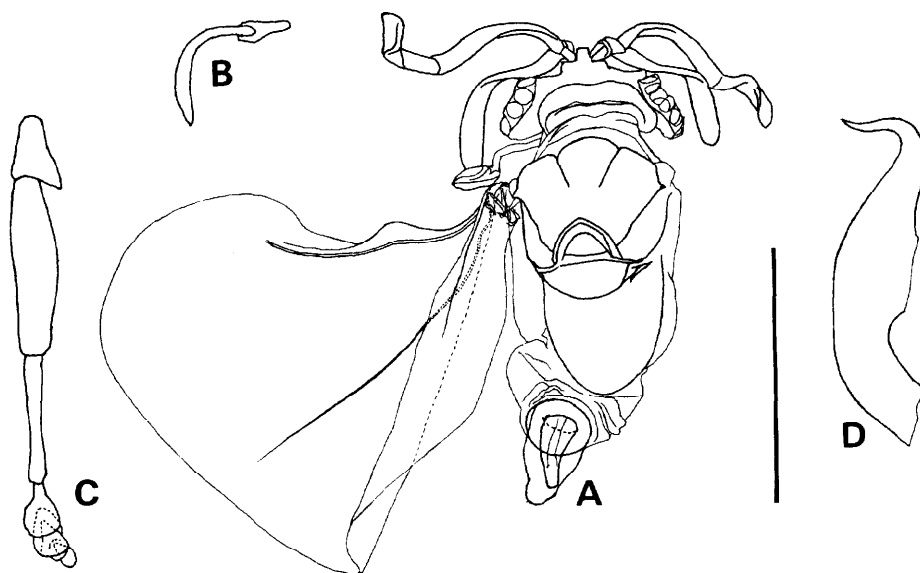


Fig. 25. *Stichotrema* (*Neostichotrema*) *gressitti* subg. et sp. nov., male, holotype [029]. A : Body and left hind wing, dorsal view. B : Left maxillary palpus, ventral view. C : Right hind leg, ventral view. D : Aedeagus, right lateral view. Scale : 0.5 mm for A, 0.125 mm for D, 0.25 mm for others.

Abdomen short but broad ; genital capsule elliptical with rectangular posterior process ; *proc-*tiger long, triangular, tip blunt. Aedeagus without ventral prong, dorsal hook slightly sinuate in lateral view, projecting from shaft by right angle ; shaft thickest at the middle and slightly curved at basal fourth.

TYPE MATERIAL : Holotype male [029], New Guinea, Neth., Biak, end of airstrip, 14. X. 1957, J. L. Gressitt, light trap.

REMARKS. This is mostly allied to *S. (Neostichotrema* subg. comb. nov.) *minus** Kifune et Hirashima, 1980, from Sri Lanka, but distinguishable as follows :

Tip of flabellum of 3rd antennal segment surpassing 6th segment ; 7th antennal segment clearly longer than 6th segment *S. (Neostichotrema) minus** Kifune et Hirashima, 1980
 Tip of flabellum of 3rd antennal segment reaching the distal end of 5th segment ; 7th antennal segment about as long as 6th segment *S. (Neostichotrema) gressitti* sp. nov.

References

- Bohart, R. M., 1937. A new genus and species of Strepsiptera from Canada. *Pan-Pac. Ent.*, **13**:101-105.
- 1941. A revision of the Strepsiptera with special reference to the species of North America. *Univ. Calif. Publ. Ent.*, **7**: 91-159.
- 1943. New species of *Halictophagus* with a key to the genus in North America (Strepsiptera, Halictophagidae). *Ann. ent. Soc. Amer.*, **36**: 341-359.
- 1951. The Myrmecolacidae of the Philippines (Strepsiptera). *Wasmann J. Biol.*, **9**: **83-103**.
- 1962. A new strepsipteran parasitic on Coreidae (Strepsiptera : Halictophagidae and Hemiptera : Coreidae). *Proc. ent. Soc. Wash.*, **64**: 91-94.
- Chattopadhyay, A. K., & P. K. Chaudhuri, 1980. Record of genus *Caenocholax* Pierce (Myrmecolacidae, Strepsiptera) from India. *J. Bombay nat. Hist. Soc.*, **76**: 490-492.
- Chaudhuri, P. K., S. K. Das Gupta, & A. K. Chatterjee, 1978. Description of a new species of *Parastylops* (Strepsiptera : Stylopidae) from Arunachal Pradesh. *Orient. Ins.*, **12** : **387-389**.
- Chaudhuri, P. K., M. Ghosh, & S. K. Das Gupta, 1983. Notes on Indian Strepsiptera with descriptions of three new species. *Dt. ent. Z., N. F.*, **30** : 23-29.
- de Meijere, J. C. H., 1908. Zwei neue Strepsipteren aus Java. *Tijd. Ent.*, **51**: 185-190, pl. 6.
- Fox, J. W., 1967. Report on some Strepsiptera in the British Museum (Natural History), including new species of Halictophagidae and Elenchidae. *Proc. R. ent. Soc. Lond.*, **B36** : 41-49.
- 1967a. Liberian Strepsiptera in the Smithsonian Collection with descriptions of seven new Myrmecolacidae. *Proc. U. S. Natn. Mus.*, **124**(3625): **1-14**.
- Gourlay, E. S., 1953. The Strepsiptera, an insect order new to New Zealand. New Zeal. *Ent.*, **1**(3) : **3-8**.
- Kifune, T., 1981. Records of the Strepsiptera from West Malaysia, with descriptions of a new genus, *Malayaxenos*, and five new species (Notulae Strepsipterologicae-VII). *Kontyû, Tokyo*, **49**: 322-333.
- & Y. Hirashima, 1979. Two new species of Strepsiptera from Thailand (Notulae Strepsipterologicae-V). *Esakia*, (14) : 61-71.
- & — 1980. Records of the Strepsiptera of Sri Lanka in the collection of the Smithsonian

* The gender of *Stichotrema* is neuter. Therefore, the specific name *minor* is mandatorily changed to *minus*.

- Institution, with descriptions of seven new species (Notulae Strepsipterologicae-VI). *Ibid.*, (15) : 143-159.
- Kinzelbach, R. K., 1971. Morphologische Befunde an Fächerflüglern und ihre phylogenetische Bedeutung (Insecta: Strepsiptera). *Zoologica*, (119) : 1-256.
- Kogan, M., & S. J. Oliveira, 1964. New Guinean Mengeidae and Myrmecolacidae (Strepsiptera). *Studia ent.*, 7: 459-470.
- Luna de Carvalho, E., 1956. Primeira contribuição para o estudo dos Estrepsípteros angolenses (Insecta Strepsiptera). *Publ. cult. Comp. Diam. Angola*, (29) : 11-54.
- 1967. Terceira contribuição para o estudo dos Estrepsípteros angolenses (Insecta Strepsiptera). *Ibid.*, (77) : 13-56.
- 1972. Algumas considerações sobre Mirmecolacídeos da Nova Guiné (Insecta Strepsiptera). *Ciência biol.*, 1 : 1-6.
- 1978. African Strepsiptera (Ethiopian region). *Garcia de Orta*, ser. Zool., 7 : 41-106.
- Muir, F., 1906. Notes on some Fijian insects. *Rept. Work Exp. Stat. Hawaii. Sugar Pl. Assoc., Bull.*, (2) : 1-11, 1 pl.
- Perkins, R. C. L., 1905. Leaf-hoppers and their natural enemies (Pt. III. Stylopidae). *Ibid.*, (3) : 90-111, pls. I-IV.
- 1910. Strepsiptera. *Fauna Hawaii.*, 3(6) : 667.
- Pierce, W. D., 1908. A preliminary review of the classification of the order Strepsiptera. *Proc. ent. Soc. Wash.*, 9 : 75-85.
- 1909. A monographic revision of the twisted winged insects comprising the order Strepsiptera Kirby. *U.S. Natn. Mus., Bull.*, (66) : I-XII, 1-232, pls. 1-15.
- 1911. Notes on insects of the order Strepsiptera, with descriptions of new species. *Proc. U.S. Natn. Mus.*, 40: 487-511.
- 1911a. Strepsiptera, *Genera Insect.*, (121) : 1-54, pls. 1-5.
- 1918. The comparative morphology of the order Strepsiptera together with records and descriptions of insects. *Proc. U. S. Natn. Mus.*, 54 : 391-501, pls. 64-78.
- Swezey, O. H., 1942. Strepsiptera. Stylopidae of Guam. *Insects of Guam-I, B. P. Bishop Mus., Bull.*, 172 : 173.
- 1946. Notes on some Fulgoroidea of Guam. *Insects of Guam-II, Ibid.*, 189 : 149-156.